



1972

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# Canada Year Book



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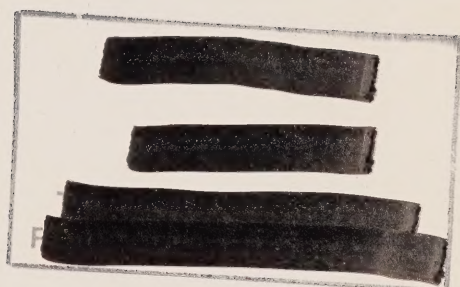




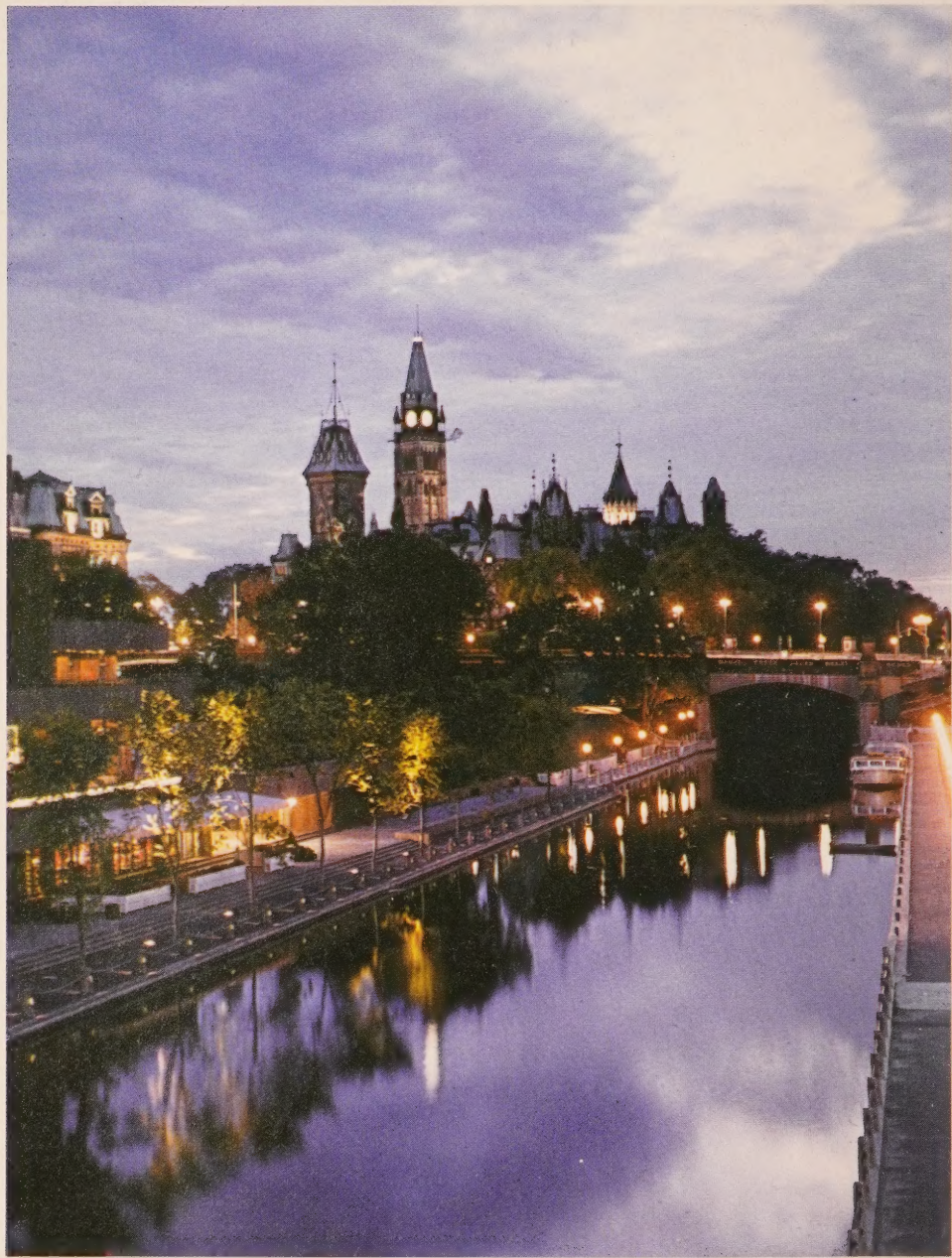












*The towers of Ottawa, etched against the evening sky, give a medieval appearance to this distinctive and progressive city, the National Capital of Canada.*

Ted Grant



1972

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# Canada Year Book

STATISTICAL ANNUAL OF THE  
RESOURCES, DEMOGRAPHY,  
INSTITUTIONS AND SOCIAL  
AND ECONOMIC CONDITIONS  
OF CANADA

*Published by Authority of the  
Minister of Industry, Trade and Commerce*



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Price: cloth-bound, \$6.00

Catalogue No. CS 11-202/1972

paper-bound \$4.00

Catalogue No. CS 11-205/1972

Information Canada

Ottawa, 1972



## PREFACE

The 1972 edition of the *Canada Year Book* continues a long series of annual publications giving authoritative statistical and other information on many of the measurable phases of Canada's development. The Year Book has, through the years, summarized the statistical data made available by Statistics Canada and presented it along with legislative and other pertinent information to give concisely, within the covers of one volume, the story of Canada's social and economic progress.

The volume purposely retains the same format and subject-matter coverage each year for ease of reference. The latest information obtainable at the time of preparation is included in each chapter; however, because the production process extends over a number of months, by the time the volume is off the press later data on some subjects may have become available and can be secured from the appropriate Statistics Canada Division or Government Department, as indicated in the footnotes or in the Directory of Sources of Official Information in Chapter XXVI. It should also be recognized that only basic statistical data are included in the Year Book and that, on most subjects, much greater detail can be secured from the source.

In the current volume, in addition to the normal updating of all subject matter, feature articles or specially prepared chapter material have been included on: "Regional Geography of Canada", pp. 1-26; "Structural Changes in Tertiary Education in Canada", pp. 370-377; "Trends in the Number of Manufacturing Establishments", pp. 768-778; "The Role of Government in the Grains Industry", pp. 1021-1028; and "The Canada-United States Automotive Products Agreement", pp. 1058-1069.


The volume was produced in the Year Book Division of Statistics Canada by Margaret Pink, Assistant Director and Editor of the *Canada Year Book*, and the Year Book staff, under the direction of Pierre Joncas, Director of the Division. The charts and maps, except where otherwise indicated, were prepared by the Drafting Unit of the bureau. Credits for photographic illustrations used throughout the publication are listed on pp. v and vi.

The co-operation of numerous officials of the various Departments of the Federal and Provincial Governments and of Statistics Canada in the preparation of material for the Year Book is gratefully acknowledged. Credit by means of footnotes is given where possible either to the persons or to the public service concerned.

*Walter E. Duffett.*

Chief Statistician of Canada

STATISTICS CANADA  
Ottawa, March 1972



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## INTERPRETATIVE DATA

In Canada as a rule the Imperial system of weights and measures is followed; an exception is the ton where, unless otherwise stated, the short ton of 2,000 pounds is meant.

### Relative Weights and Measures, Imperial and United States

The following list of coefficients may be used to translate amounts expressed in one unit to the other. Where reference is made to Imperial pint, quart and gallon, their equivalent in ounces is also in Imperial measure; likewise United States designations for these quantities are shown in the U.S. equivalent in ounces. The Imperial (or British) fluid ounce and the U.S. fluid ounce are different measures. One Imperial fluid ounce equals 0.96 U.S. fluid ounce and one Imperial gallon equals 1.2 U.S. gallons.

1 Imperial pint=20 fluid ounces	1 short ton=2,000 pounds
1 U.S. pint=16 fluid ounces	1 long ton=2,240 pounds
1 Imperial quart=40 fluid ounces	1 barrel crude petroleum=35 Imperial gallons
1 U.S. quart=32 fluid ounces	1 ounce avoirdupois=0.91146 ounce troy (oz.t.)
1 Imperial gallon=160 fluid ounces	1 statute mile=5,280 feet
1 U.S. gallon=128 fluid ounces	1 nautical mile=6,080 feet.
1 Imperial proof gallon=1.36 U.S. proof gallon	

### Fiscal Years of Federal and Provincial Governments

The fiscal year of the Federal Government and of each of the ten Provincial Governments ends on March 31. Throughout the Year Book, all figures are for calendar years except where otherwise indicated in text or table headings.

### Miscellaneous

Maritime Provinces=Prince Edward Island, Nova Scotia and New Brunswick  
Atlantic Provinces=Newfoundland, Prince Edward Island, Nova Scotia and New Brunswick  
Central Canada=Quebec and Ontario  
Prairie Provinces=Manitoba, Saskatchewan and Alberta  
Btu.=British thermal unit (coal)  
Mcf.=thousand cubic feet (gas)  
n.e.s.=not elsewhere specified.

### Symbols

The interpretation of the symbols used in the tables throughout this publication is as follows:—

- .. figures not available.
- ... figures not appropriate or not applicable.
- nil or zero.
- amount too small to be expressed or where "a trace" is meant.
- ᵖ preliminary figures.
- ʳ revised figures.



*Magpie Falls, near Wawa, Ont.*



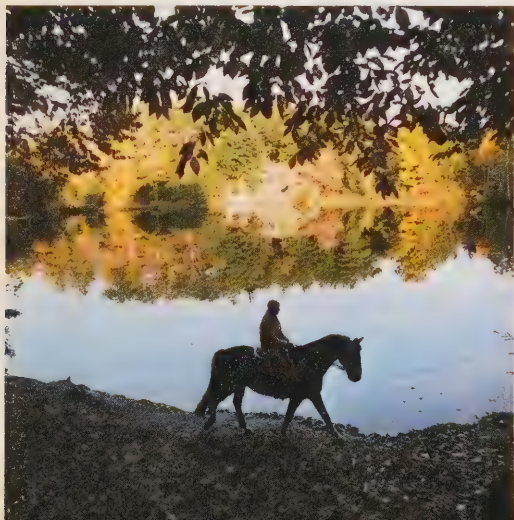
Water remains the key to Canada's development as it was in the past. Almost every portion of its great area is well supplied with water—in broad and rushing rivers, in large lakes and in ponds, in marshlands and in sloughs—all with a part to play in the economic and recreational well-being of its people.

*Lake Morain, Alta.*

*Goose Sanctuary, Rennie, Man.*

*Gatineau Park, Que.*

Malak and George Hunter



# CHAPTER I.—PHYSIOGRAPHY AND RELATED SCIENCES

## CONSPECTUS

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*The interpretation of the symbols used in the tables throughout the Year Book will be found on p. vii of this volume.*

## Regional Geography of Canada\*

Canada's geography is complex. In the large area of 3,851,809 sq. miles of land and inland lakes there is a variety of distribution patterns of physical conditions and man-made features. In order to help comprehend the similarities and differences from place to place across this vast area, geographers divide the country into smaller units within which understanding becomes more manageable.

These regions should have some degree of internal similarity based on selected criteria. The selection of these characterizing criteria and the size of the resulting regions are subjective decisions based greatly on the experience of individual geographers with the variety of landscapes across Canada. The concept of geographical regions has a hierarchy of units which increase in size and complexity. Every valley and every village has its own geographical character; in theory, a study of each of these small units should lead to understanding of the geographical patterns of Canada as a whole. The joining together of a number of small units into larger regions depends on the purpose and scale of the study and becomes a matter of personal choice. Regional geography is not how one *begins* to study a country; it is an end result of having compared and analysed geographical patterns throughout the country and its parts.

For purposes of this presentation, which is limited in length, six regions of Canada have been chosen. The regions are well known to Canadians and therefore have the advantages of local familiarity and national recognition. The criteria for defining them are not always the same—some are mainly landform areas, and some are groups of political units

\* Prepared by Dr. J. Lewis Robinson, Professor of Geography, University of British Columbia, Vancouver, B.C.



which are just as "real" as mountain ranges. On a broad scale, one needs more specific regional terms than "eastern", "western" or "northern" Canada, which mean different things to different people depending on where they are at the time. To the people of the Prairies and British Columbia, Ontario and Quebec are "eastern"; Kirkland Lake, for example, is probably "northern" to most people in Ontario, but it is at the same latitude as Vancouver which considers itself to be "southern".

**The Atlantic Provinces** are a politically based region, which includes the Maritime Provinces and the Island of Newfoundland; the Labrador section of Newfoundland is placed in the Canadian Shield region, an area with which it has similar environmental and resource-use characteristics. The Atlantic Provinces are known to Canada statistically for their lower incomes, their less expanding economy and their independent people. As a landform region, the Atlantic Provinces are within the northeastern Appalachian Mountains system, a system that also extends across southeastern Quebec to Gaspé peninsula. This latter area is often "lost" in a regional discussion because it is far from the core areas of southern Quebec.

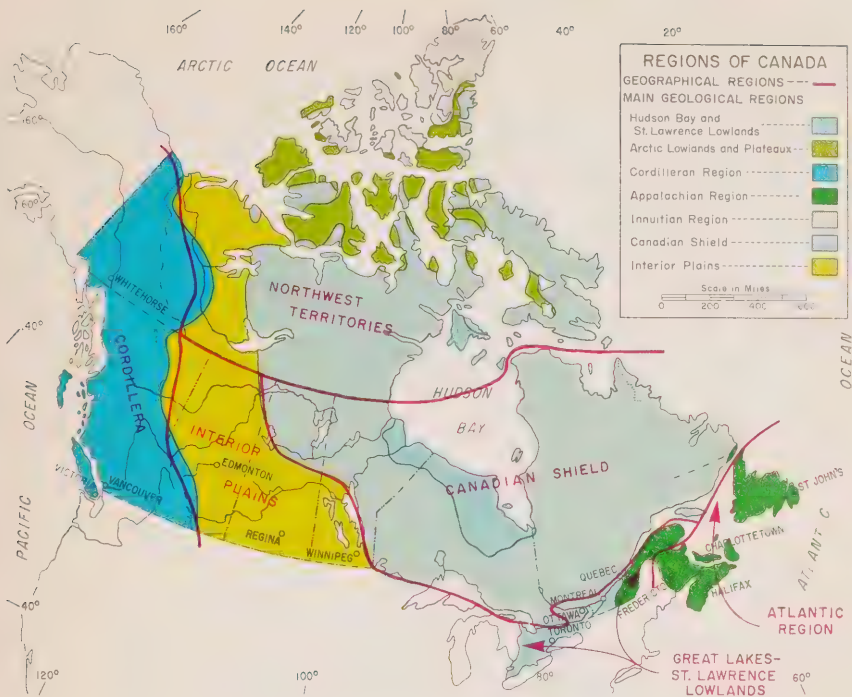
**The Great Lakes-St. Lawrence Lowlands** are defined on the north by the geological boundary of the Canadian Shield, an escarpment that is quite distinct and visible in the landscape. This landform feature is a useful regional boundary which separates the agricultural and urban characteristics of the Lowlands from the forested and sparsely populated Shield. The Lowlands region has the highest densities of industry and population in Canada and is known as the "heartland" of the nation.

**The Canadian Shield** is another landform region, and defined on the basis of its exposed Precambrian rock base. Its physical environmental characteristics of bare rocks, forests and lakes are quite distinct from the Lowlands. It is a huge area, covering about half of the mainland of Canada. The northwestern part, although having the same general geology, has a different surface environment and different human use and therefore is discussed here as part of the Northwest Territories.

**The Interior Plains** are sharply bounded on the west by the high wall of the Rocky Mountains, but the geological and landform line of the Shield on the east is often hidden beneath former glacial lake deposition or by coniferous forest. The plains are the largest area of nearly level land in Canada and are known for their distinctive large grain farms. Although there is some logic in treating all of the Prairie Provinces as a political region, the environmental and economy characteristics of the old hard-rock areas of northern Manitoba and northern Saskatchewan are very different from the southern plains; the northern parts of those provinces may be better understood by considering them as part of the similar environment and economy of the Canadian Shield.

**The Cordillera** is a distinct mountainous region which coincides closely, but not entirely, with the political limits of British Columbia and Yukon Territory. This landform boundary places the level parts of northeastern British Columbia in the Interior Plains, emphasizing its differences from the rest of British Columbia. The Cordillera is characterized by great contrasts in the elements of the physical environment within small areas and also by internal contrasts in population densities. It is debatable whether the Yukon should be considered as part of the mountainous Cordillera with a Pacific outlook, or should be studied for its "northern" characteristics and grouped with the Northwest Territories.

**The Northwest Territories** have no landform or other environmental uniformity. To describe this political unit as a region raises some geographical questions. Will the population distribution and sparse economy of the Mackenzie Valley be better understood by emphasizing its similarities with the northern Interior Plains of which it is a landform extension, or by thinking of the Territories as a political unit *separated* from southern



Canada by the sparsely populated northern parts of the provinces? Is Keewatin District, for example, part of the Canadian Shield region, which it is geologically, or is it separated from the Shield geographically because of its treeless environment, arctic climate and Eskimo inhabitants?

These and other questions have been considered prior to selecting the six regional divisions. Undoubtedly, the geographical diversity of Canada could be better illustrated by selecting 10 or 20 regions, but in so doing there would be danger of losing sight of the aspects of similarity and the "wholeness" of Canada. This brief regional geography of Canada is meant not only to characterize the landscapes and economies of particular parts of Canada but also to see them as components of the whole country.

Regional Geography is *not* a collection of miscellaneous information about a region. Undoubtedly facts are necessary to describe a region accurately, but facts are neutral—they do not in themselves constitute a discipline. It is the selection, arrangement and interpretation of these facts that present a viewpoint which can be defined as geographical (or historical, economic, sociological, political or other such viewpoints). Just as in history, for example, there is a selection of facts during a period of time, so in geography there must be a selection of facts about areas. Few facts are included in this article because the intention is to present a geographical characterization and interpretation of a variety of facts. A selection of some of the basic facts is given on pp. 27-41, and in previous Year Books, and the distributional aspects is recorded in the new *Atlas of Canada* and in the various provincial atlases which have been published in the past 15 years.

Geography seeks to describe and explain as much of the totality of a regional landscape as is possible. A landscape is made up both of the natural (physical) environment (that is, "nature" with little change made by man) and also the distribution patterns of man-made features. Geography is concerned with the arrangement and relationships of these natural and human features, and it looks for order and repeated pattern in the landscape.

These patterns are, of course, *not* permanent; they change both over time and in area. Thus, there are regional geographies of the last century which are not the same as the present. Large areas of Canada have similarities in certain elements of their landscapes and, by grouping these selected similarities into regional units, the "character" of a region may be defined and its differences from other regions clarified. Many people have a "regional consciousness" which tells them intuitively that their local area differs in certain aspects from some distinctive characteristics of nearby or far-off regions; it is one of the tasks of regional geography to identify and define these characteristics more accurately. At the same time, as people travel more about Canada, they realize the similarities that may be seen from place to place; thus, comparing similarities in regions is equally as important as defining differences. Each Canadian probably has a different view of the "totality" of Canada, for no one can know everything about each region. The purpose of regional geography is to assist, along with other disciplines, toward the goal of understanding as much as possible about Canada in whole and in part. By definition, however, regional geography must be focused on the geographical aspects of the country.

### The Atlantic Provinces

By most economic and statistical measurements of regional development, the Atlantic Provinces rank at or near the bottom among Canadian provinces. It has been called the region that "has been passed by"; it is the neglected part of the country, according to many local residents. One of the purposes of regional geography is to look at the *internal* patterns of these economic indicators to see if there are areal differences. Such analysis reveals that it is misleading to think of the whole region as being "underdeveloped" because some centres and areas are in fact as prosperous as other parts of Canada and it is only in specific sections that poverty is concentrated. There is, therefore, a sub-regional geography of poverty which needs to be understood when characterizing the economy of the Atlantic Provinces.

As a part of Canada, other characteristics of the Atlantic Provinces differ from the rest of the country. Its low, linear mountains and rugged, indented coasts are different landform types than those of the St. Lawrence Lowlands. The maritime climate of the Atlantic Provinces is not the same as that of the rest of Eastern Canada and it differs from the maritime climate of the West Coast. Although its trees are similar to those growing elsewhere in Eastern Canada, the way in which they are spatially associated permits classification as a separate vegetation region. Resource-based occupations are more important in the Atlantic region than they are in southern Ontario and Quebec. Although the individual farms, villages, towns and cities are similar in form and function to other settlements in Canada, their geographical dispersal in small areas, strips and centres gives the region different geographical patterns of settlement and human use.

In addition to noting the characteristics that distinguish the region from the rest of Canada, regional geography should also analyse the areal associations of various elements within an area. The form and distribution of landforms, for example, are directly associated areally with the bedrock geology. The folded, linear geological structures of the Atlantic region are part of the Appalachian system of folded mountains, ridges and valleys which occupies eastern North America. Horizontal strata of Carboniferous age are one of the reasons for the lowlands of eastern New Brunswick, all of Prince Edward Island and northern Nova Scotia. On a smaller scale, the linear Annapolis-Cornwallis valley has been eroded out of the softer rocks of Triassic age. In contrast, the rugged and hilly areas of central New Brunswick are underlain by the ancient volcanic rocks of Devonian and Ordovician ages. Similarly, the low, rough hills of central Nova Scotia consist of hard rocks of Devonian and Precambrian geological periods.

The climate has sub-regional contrasts in its areal patterns. Near the coast the climate has typical maritime characteristics, but inland it is a continental type similar to the nearby parts of Eastern Canada. Cool coastal summers are due mainly to the southward-moving cold Labrador ocean current which is alongshore of eastern Newfoundland and



Nova Scotia. The cool air passing over this cold water is not carried far inland, however, and interior valleys become warm to hot during summer days. These regional differences in average summer temperatures have implications for agriculture and also for the use of the land by tourists. The winter climate of the interior parts of the region is similar to that of adjoining Eastern Canada because cold air masses affect all of the area in their general west-to-east movement across southeastern Canada and northeastern United States. The coldest areas are in northwestern Newfoundland and in the hills of northern New Brunswick. On the coast, owing to the extent and duration of ice-cover, the winter climate and man's activities in Newfoundland are different from those near the ice-free water of southern Nova Scotia. Geographers always keep in mind that there is a hierarchy of areal scale in their generalizations. Thus, in addition to the sub-regional differences between coastal and interior climates, there are micro-climates of local areas which are associated more with landforms. Hills are cooler in summer and winter and receive more precipitation than lowlands. River valleys therefore have different climates than nearby hills.

Other elements in the physical environment of the region have distinct areal patterns of distribution. Deciduous trees, for example, are more common in the warmer valleys and lowlands of New Brunswick whereas barren areas are more frequent in the cool and glaciated central plateau of Newfoundland. Coniferous trees are common throughout the region, but the *number* of species is greater in the southwest than in the northeast. Soils are sensitive to all variations in the natural environment; they emphasize the interrelatedness of the total physical environment both in processes and in areal relationships. The

*The community of Little Bay Islands, tucked around a snug harbour in Notre Dame Bay, is typical of the fishing villages along the rugged and forbidding north and eastern coastline of Newfoundland.*



George Hunter

character of the flood-plain soils of the Saint John or Annapolis river valleys, for example, is different from the glacial and marine deposition of eastern New Brunswick or the red soils derived from Carboniferous-age rocks of Prince Edward Island. This brief example of the ecological approach in regional geography has been in common use for many decades, long before the current interest in the "ecological crisis".

The distribution patterns of human activities and settlements in the Atlantic Provinces are equally as distinct as the areal patterns of environmental phenomena. The important resource-based activities and occupations are closely related to the natural environment from which the natural resource is obtained. Obviously, forestry activities will be located where there are usable forests, but only in *certain* forested areas where water, rail or road transportation has been added. Fishing is coastal, of course, but the coasts show areal variations in the intensity of fishing use and in the concentration or dispersal of fishing settlements; some inlets and bays are fully occupied and others have little fishing activity. The distribution of mines is related to areal differences in bedrock geology; for example, the Carboniferous rocks of the lowlands are sources of bituminous coal, salt and a little petroleum and natural gas, whereas the hard igneous and metamorphic rocks of the uplands may contain such metallic minerals as gold, lead and zinc. These human-use geographical patterns in all regions are the result of complex internal and external influences and decisions. Although the physical environmental base of the resource activity changes very little, the weight and value of these external influences are continually changing. The distribution patterns of economic activity are not stable; geographical change is characteristic of all regions.

Forestry activity has distinct geographical patterns. An analysis of distribution patterns of sawmills and pulp and paper mills in the Atlantic Provinces can illustrate some principles of industrial location that can be used to study distributions elsewhere in Canada. The sawmills of New Brunswick and Nova Scotia were originally located on rivers in the nineteenth century because water was the cheapest and most convenient means of transporting logs. In addition, because lumber products were for export, many sawmills were placed at river mouths or other places accessible to ocean shipping. As road and rail transport became increasingly available, the need for river location decreased. The availability of the natural resource is still significant in the distribution pattern, however, as illustrated by the fewer sawmills on Prince Edward Island which is more than half cleared for agriculture, or on Newfoundland Island where two thirds of the land is barren of trees. Because pulp and paper mills produce mainly for export, they also have a peripheral location pattern, usually at or near river mouths. In the past, the rivers were used more for pulpwood transport than they are now but the river water is still important in the pulping process. The distribution of cities is partly related to forestry. Certain towns, such as Grand Falls in Newfoundland, Dalhousie, Edmundston and Newcastle in New Brunswick, and Liverpool and Sheet Harbour in Nova Scotia, are almost entirely dependent on the pulp mills for employment. Although they are distinct urban entities within the Atlantic region, internally these "one-industry" towns differ very little in appearance from some resource-based towns of the Canadian Shield or the Cordillera.

The areal patterns of agriculture have changed over time. As farming became more commercial, the subsistence farms once located on the poorer soils, steeper slopes and away from main roads were abandoned; the distribution of commercial farms became much more closely associated with improved roads and access to the larger cities. This trend produced a pattern of narrow strips of farmland in New Brunswick and Nova Scotia. All of Prince Edward Island, because of its small area, narrow shape and lack of landform barriers, could be easily served with roads and therefore agriculture spread throughout the Island. But even on the small island there are sub-regional differences in the amount of forest clearing, with the eastern sections having more woodland remaining than the central parts. Agriculture never became significant in Newfoundland's economy. Its cool summer climate and lack of coastal soils did not provide a suitable physical environment, and in the past it did not have a road or rail network to move food products to



Malak

*The flat, fertile farmlands of Prince Edward Island slope gently into the waters of the Gulf of St. Lawrence.*

markets. "Farms" tended to be gardens and their distribution coincided with the location of the small fishing villages.

The farms in the rural landscape of the Maritime Provinces are quite similar to those of other parts of Eastern Canada. Its livestock economy, with much of the land in pasture, hay and feed grains, is a similar land use to that of most farmland in Quebec and Ontario. Thus, the regional character of agriculture in the Maritimes does not stem from its type of farm or general land use, but is distinguished by the distinct shape of its farmland strips and its areal dispersal.

The geography of fishing activity indicates a changing distributional pattern from dispersal to concentration. In Newfoundland mainly, but to a lesser extent in Nova Scotia, the small fishing "outports" or villages were dispersed along the coast in sheltered bays, near headlands or on islands—that is, in particular sites where the small family groups had access to the natural resource—the migrating fish. Because each family wanted space for drying flakes, separate wharves, and adjoining gardens—all with shore location—these fishing villages developed peculiar dispersed patterns of housing. The visual form of these villages was different from other resource-based settlements in Canada and those that remain constitute one of the elements in the total landscape that gives regional character to the Atlantic region. However, this pattern of dispersed fishing village settlement is changing rapidly in Newfoundland and has almost disappeared in New Brunswick and Nova Scotia. Fishermen are now concentrating in towns near the processing or freezing plants where there are more health, education and social services. This accelerating trend toward a general concentration of people and activities into fewer and larger places is similar to the areal patterns evolving elsewhere in Canada.

One of the distinguishing characteristics of the Atlantic Provinces is the relative importance of its resource-based economy and a scarcity of large cities. As already noted, the distributional geography of resource-based activities and the settlements that depend on them is generally coastal. These settlements are usually small, each having a population of from 5,000 to 10,000 persons, and are often dependent on only one resource. The few larger cities, Halifax-Dartmouth, Saint John, St. John's, Moncton, Sydney and Fredericton,



are those in which a variety of manufacturing, transport, port, commercial, government and service functions take place. Although their sites and settings are obviously different, their internal urban landscapes are quite similar in many ways to those in cities elsewhere in Canada and are not, therefore, elements of differentiation. It is true that the closely packed streets of gaily painted frame houses in old St. John's are unique in Canada, but the streets of new bungalows near Memorial University could be found in any city of Canada; and although the architecture of some brick buildings in Halifax is different, its new high-rise office buildings and strips of commerce along the streetcar lines are duplicated in most other Canadian cities.

What the region lacks is a very large urban centre that could be a concentrated consumer market for local manufactured products. If the geographical patterns of the population in the Atlantic Provinces showed a concentration of more than half of its people, and associated urban activities, in one small area (similar to the geographical patterns and relationships of Vancouver to British Columbia), could one predict a more healthy internal economy for the Atlantic region? If it is said that we should be able "to learn from the repetition in history", one can therefore suggest that we should also be able to learn something from comparative geography.

### The Great Lakes-St. Lawrence Lowlands

The lowland extending across southern Ontario and southern Quebec is the smallest region in Canada but holds more than half of Canada's population and produces about three quarters of its manufactured goods. This small region of Eastern Canada has more large cities of over 100,000 population than any other equal-sized part of the nation. Its excellent agricultural lands help to feed the nation's two largest cities—Montreal and Toronto. As a geographical region, the Great Lakes-St. Lawrence Lowlands are "the heartland" of the country, characterized by high densities of urban, industrial and agricultural activities.

The Lowlands have internal sub-regional contrasts that are the result of cultural differences between French-Canadian settlement of southern Quebec and settlements of British-origin peoples of southern Ontario. The rural landscape of southern Quebec, with its long, narrow farms and linear villages, is distinct within Canada, and contrasts with the rectangular farms and dispersed farmhouses of southern Ontario. The rural villages of Ontario, with their small, compact, central areas of commercial buildings, contrast with the Quebec villages in which residential and commercial uses are often interspersed along the streets. Although the Ontario and Quebec sections of the small Lowlands region have notable contrasts, they are also interdependent. For example, each is the best customer for the other's manufactured products.

The lowland region lies south of the sharp geological and landform boundary of the Canadian Shield, occupying the peninsula of southwestern Ontario between lakes Huron and Ontario and extending eastward in a narrowing plain along the St. Lawrence River to Quebec City. On a regional scale, the Lowlands could be described as flat or gently rolling but, as in other regions, there are areal variations in the character of micro-landforms at the sub-regional scale. These minor features are the result of two geological structures and three general types of glacial deposition. Two landform features, which are the surface configurations of bedrock geology, are the Niagara escarpment crossing southern Ontario and the Monteregian Hills of southern Quebec. Both of these minor landform features affect the type of agriculture nearby and are significant elements in the regional landscape.

One of the regional characteristics that distinguishes the Great Lakes-St. Lawrence Lowlands from the rest of Canada is its climate. In summer, hot and moist air masses often spread northward from the Gulf of Mexico and move northeastward across southern Ontario resulting in several days of high heat and humidity. Average monthly July temperatures rise to more than 70°F., making it warmer than any comparably large area of Canada. Such temperatures, plus a long frost-free season of 150 to 175 days, favour

the growing of several crops that cannot be produced elsewhere in Canada. Except in the southwest section, winter temperatures differ little from those experienced in other parts of Eastern Canada because many of the interior cold air masses move southeastward from the Prairie Provinces to the Great Lakes-St. Lawrence Lowlands. Because these cold air masses reach southwestern Ontario less frequently, its January average temperature of 25°F. is higher than that recorded in southern Quebec.

In this region of warm summers and mild winters, the belt of deciduous trees across southern Ontario was unique in Canada, but most of this hardwood forest has now been removed by agricultural clearing. The trees that remain are part of the Mixed Forest (deciduous and coniferous) which also covers the southern part of the Canadian Shield and extends into the Maritime Provinces. The beautiful autumn colours of this forest are a visual part of the landscape of most of the settled parts of all of Eastern Canada and are not confined to any one region.

Many other elements in the natural environment of the Great Lakes-St. Lawrence Lowlands are not distinctly different from adjoining regions, and this same environment extends south into the United States. It was the *combination* of these physical conditions, together with their geographical location, that presented such a favourable environment for people looking for agricultural land in the nineteenth century. The region had the largest area of level land with a warm summer climate in Canada, and it was accessible by way of the St. Lawrence River to settlers entering from the east. Although the physical environment may be of less significance in the technology of today's farming, it was important in attracting and holding agricultural settlement during the past century. The region became the largest and most productive agricultural area in Canada before 1900, and continues to provide food for the cities that grew within it in this century.

*The Niagara Peninsula lowland is one of the most intensively farmed areas in Canada, producing a great variety and abundance of food products for the large concentrations of population nearby as well as for shipment to more distant markets.*



In general, the crops grown in both southern Ontario and southern Quebec are similar. Each has a high percentage of agricultural land in hay, pasture and feed grains to supply a dominant dairy industry. Despite the visual similarity of the crops in much of southern Quebec and southern Ontario, there are unmeasured and subconscious differences in the rural "way of life" and attitudes to the land in Quebec which give one a feeling that farming is a different type of occupation there. The rural landscape differs in detail, however, because of two factors—the number of special crops that are grown in particular places in southern Ontario, and the distinctive long-lot land subdivision system in southern Quebec. In southern Ontario, three areas of specialty crop production bring sub-regional areal variety to the rural landscape. (1) The southwestern peninsula produces all of Canada's soybeans, has a high percentage of land under corn and, although vegetables are produced near most cities, the specialty area near Leamington and Point Pelee, with its concentration of glass greenhouses, is a distinct areal unit in the sub-region. (2) The chief tobacco area of Canada, coinciding with a section of sandy soils of a former glacial delta, is centred on Norfolk county north of Lake Erie. Its distinctive tobacco barns for flue-curing are cultural features which would define the agricultural region even in winter. (3) The fruit and vineyard concentration of the Niagara peninsula, mainly on the lake plain north of the escarpment, is one of the few relatively large areas of intensive horticulture in Canada.

In southern Quebec, the long-lot farms and linear villages are cultural and visual remnants of the land subdivision systems of New France. These linear farms, often marked by old rail fences, stretch back from the St. Lawrence, Richelieu and Chaudière rivers, and from the later-built roads that parallel the rivers. In contrast, the Eastern Townships of southeastern Quebec have a different rural landscape as a result of the rectangular land subdivision system brought in by British settlers, and because of the linear hills and valleys of the Boundary Ranges. This sub-region of Quebec illustrated the northward migration of landscapes developed in New England. Thus, despite having the same hay and pasture crops as farms in the rest of southern Quebec, and occupied now by French-Canadian people who migrated from the St. Lawrence Valley, the hills and farms of the Eastern Townships present a different sub-regional landscape.

On top of this prosperous agriculture of the Great Lakes-St. Lawrence Lowlands, the most intensive urban system of Canada has been built. More than ten million people live in close proximity to one another and their activities in industry, commerce, transport, service and recreation are all closely interrelated areally. A size-hierarchy of hamlets, villages, towns and cities is spaced in geometric pattern across the Lowlands from Quebec City in the northeast to Windsor in the southwest. Each urban place has its own internal geography but, despite different histories, economies and cultures these cities often have many similar internal areal patterns.

The Lowlands as an urban region is a good area in which to study the geographical concepts of establishing, defining, measuring and describing the many areal and functional connections between a city and its hinterland. For example, the growth of Montreal has had a dominant influence on the areal arrangement of the economy of Quebec. The dairying and market-garden agriculture in the surrounding Montreal Plain is located there to supply this large urban market. The changes in the rural landscape of southern Quebec, from the "quaint habitant" farms of the nineteenth century to the present, well-equipped dairy farms can be attributed directly to the influence of Montreal. The city's clothing industry is functionally connected with the many textile and yarn mills in the towns and villages south and east of Montreal. Farther afield the resource industries of the Canadian Shield are managed from offices rising above Montreal's central business district. Railways, highways and the St. Lawrence River all focus a variety of traffic and products into Montreal; in the geographical pattern of transport Montreal is a central hub.

Another scale of urban geography can be studied within the city itself. In all cities, people, economic activities and buildings are grouped together into distinct areas of common usage. In Montreal, industrial buildings (and their associated range of human activities)



are concentrated along transport lines—the harbour, rail lines and main highways. Montreal, like other Canadian cities, illustrates that industry has geographical patterns of distribution and areal associations with other phenomena, just as there are distribution patterns of landforms, climates or agricultural crops. Industries are located where they are for certain sets of reasons and these can be analysed to explain the logic of the areal patterns; these industrial zones should also show an areal association with certain types of homes for workers. The Lachine residential area, for example, cannot be fully understood without reference to the “work places” in industries along the former Lachine Canal and adjoining railways. Montreal, similar to other cities, has distinct distributions of its ethnic or national groups. English-speaking persons, for example, live in Westmount or Pointe Claire, and French-speaking persons dominate Montreal East; Italian or Jewish people live in the north-central area. Although areal patterns of social geography are characteristic of most cities, it is the particular arrangements of people, their industries, their commerce and their recreational areas that result in that distinctive geographical entity known as Montreal.

Just as Montreal dominates the economy of all of southern Quebec so do the smaller cities in the size-hierarchy dominate the activities of their sub-regions. Sherbrooke, for example, is the main service centre and the chief “work place” in the Eastern Townships. Other towns in southeastern Quebec tend to depend on one industry—often textiles—but Sherbrooke has a variety of industries, educational and service functions, as well as good transport connections in all directions. Quebec City performs a similar “central place” function for people within the lower St. Lawrence region. Its government, educational and religious functions are important employers that give an economic base to the city, but Quebec also processes some of the resources of the nearby Shield and supplies services to residents of the small towns along the lower St. Lawrence River. Because the Great Lakes–St. Lawrence Lowlands region is the main urban region of Canada, many of its internal geographical patterns can be analysed by studying city-hinterland concepts in more detail than can be done here.

There are similar relationships between cities and hinterlands in southern Ontario. The spreading “megapolis” of Greater Toronto is the central focus of transport lines that serve all of the Ontario lowland and bring the natural resources of the Canadian Shield and the Interior Plains to the city. The areal manifestations of these many spatial connections are illustrated by the management and clerical workers who cluster into the high-rise office buildings of the financial area of downtown Toronto. Although these financial and industrial activities also serve the large concentration of people in the Toronto metropolitan area, they are partly the result of the movement of products, peoples and ideas between the city and its hinterland.

Like Montreal, Toronto has an internal urban geography of its economic activities and social groups. Toronto’s commercial core, for example, is a visual, areal entity that has spread north of the old centre of the original town. The size and number of stores in Toronto’s suburban shopping plazas are spatially related to the size of the surrounding residential area and its number of residents. A walk through Toronto’s “Little Italy” leaves no doubt about the areal concentration of certain ethnic groups in a relatively small space. Despite the differences in languages, street and store signs, architecture and other small items in the urban landscapes, there are many similarities between Montreal and Toronto in the manner in which specific functions and activities are arranged in spatial order.

The cities around the western end of Lake Ontario are now an urban complex which is not duplicated on the same scale elsewhere in Canada. From Oshawa to Hamilton and spreading east to St. Catharines and Niagara Falls, this part of southern Ontario has unique areal patterns formed by the coalescing of individual city patterns. This region has problems of conflicting urban-rural land use, replacement of local governments and numerous social problems, any study of which must consider the particular distribution of



buildings, institutions and transport lines that man has placed on the local landscape. When one sees the problems of moving from place to place in New York, Chicago or Los Angeles, one can appreciate the need for careful planning of future geographical patterns of people and activity in Canada's largest urban concentration.

The remainder of southern Ontario has sub-regions which are centred by one large city, as in southern Quebec. London, for example, as the centre of the four richest agricultural counties in Canada, has service, commercial and industrial areas which function with and for that immediate hinterland; but the city also has industries of regional and national importance as a result of its good transport connections. Windsor is less of a regional capital in the southwest than it is an international city. Many of its industrial activities are the direct result of its location across the narrow Detroit River from Detroit, Michigan. Each Ontario city has its own distinguishing characteristics in terms of certain landmarks, parks or buildings but in other ways they look very much alike along the commercial strips, in new suburban residential streets or along "motel row" on the city edge.

The Great Lakes-St. Lawrence Lowlands region is the most important agricultural and urban region in Canada. Although much of its *area* has been cleared of trees and is now a landscape of prosperous agriculture, most of its *people* live in small areas with large populations. Its large extent of farmland has different landscapes than the even larger area of farmland on the Interior Plains, and its production is more valuable than the latter. Many of the internal urban patterns of its cities are repeated in other cities but nowhere else in Canada are there as many large cities, and they are linked together in a spatial system which has a regional geometry of spacing and linkages not duplicated on this scale elsewhere in the country.

### The Canadian Shield

The Canadian Shield occupies about half of the mainland of Canada. Although there are differences between the northern and southern parts of the region there are also large areas in which there is much similarity. The Shield is defined on the basis of its geology; it is the area underlain directly by ancient Precambrian rocks. For purposes of this discussion, the area of younger sedimentary rocks of Palaeozoic age of the Hudson and James Bay lowland is also included because it is similar to the Shield environment in some other characteristics. The Shield is a region of forests, lakes and rocks, but these environmental elements have varying densities and distributions internally. It is a region of few people, compared with its large area, and these people are mainly urban dwellers. The southern Shield, sometimes called the "middle north" by persons in southern Ontario and Quebec, has a resource-based economy; its products—minerals, wood and water power—are exported outside of the region or outside of Canada. The physical environment of the Shield contrasts strongly with that of the Lowlands south of it. Although the line on the map between these two regions is often very sharp in the landscape, interaction and movement between them is common and they are interdependent. Many of the raw materials of the Shield move to the Lowlands for processing or consumption; a reverse flow of people comes into the Shield for recreation and holidays.

The ancient, worn-down, Precambrian rocks of the Canadian Shield have landform characteristics over large areas which are not duplicated elsewhere in Canada. Its often-bare, rocky, knobby hills and its valleys filled with glacial deposition extend in a huge horseshoe shape around Hudson Bay from northern Labrador to the Arctic Coast of the Mackenzie District of the Northwest Territories. Although generally a rugged land internally, the hills are seldom more than a few hundred feet above the valleys. There are very few large areas of level land that might have significance for potential agriculture or forestry.

One method of studying the enormous Shield in smaller units is to look at the drainage basins (see p. 35). The longest rivers flow toward the interior—toward the shallow, cold water of Hudson Bay or to the Arctic Coast. The shorter rivers are outward-flowing and

drop down from the lake-dotted plateau in Labrador, in southern Quebec and in the Mackenzie District, often spilling over the outer escarpment in falls or rapids. The position and character of these rivers are significant for hydro-power production. An exception to the areal pattern of inward- and outward-flowing rivers is the Nelson-Saskatchewan river system where the higher land of the Interior Plains drains directly across the gentle slope of the Shield to southwestern Hudson Bay.

Because the Shield constitutes such a large area of Canada, regional differences in climate can be expected. In general, average monthly temperatures and annual precipitation decrease from the southeast to the northwest. Average winters are less cold in the southern Shield because they may be moderated by occasional warm air masses from the Gulf of Mexico. In summer, large interior and northern sections of the Shield are cooled by the proximity of the cold water in Hudson Bay. In the regional climate of the Shield, the southeast has moderate winters, relatively warm summers and ample precipitation; the northwest has severe winters, no summer and scanty precipitation.



George Hunter

*Canadian Shield terrain west of Lake Superior in the vicinity of Steep Rock Lake, where the water area is almost equal to that of the land.*

These regional differences in climate are mirrored in the vegetation patterns across the Shield. The Mixed Forest covers its southern edge. To the north where average winter temperatures decrease, deciduous trees become fewer and coniferous trees dominate in the forest cover. The conifers are a source of pulpwood which is so important in the total Canadian economy. Northward, even the hardy coniferous trees have difficulty in surviving where summer temperatures decrease, soils are thinner, poor drainage is more common and bare, glacially scoured rock more apparent. Thus, the northern part of the Shield in Quebec and in the Keewatin District of the Northwest Territories is treeless. The close

relationships among environmental conditions are apparent in the similarity of areal patterns of the above-noted phenomena. One of the tasks of physical geography is to explain these ecological relationships and to show how they vary regionally.

Natural-resource utilization in the Shield has evolved specific distribution patterns. From a central core near the south-central outer edge of the Shield, man and his resource-exploitive activities have spread outward across the outer sections. This semicircular pattern of utilization is now penetrating slowly into the Shield where vast areas still remain unoccupied. As already noted, however, the natural environment is different to the north and the resource potential there is scanty or lacking; the same type or intensity of resource development and allied settlement cannot be expected in the north.

The geography of mining is concerned with the distribution patterns of mines, and their grouping together into mining regions. These areal patterns are associated internally with certain types of bedrock geology and externally with transport lines and markets. Mining settlements are both clustered and dispersed; they form an interconnected network of communities in the south-central part of the Shield, but they are isolated towns along the eastern and northwestern flanks. Although known as "the storehouse of minerals" in Canada, not all of the Shield is mineralized. There is a direct spatial association between the areas of volcanic ("green-stones") rock and mineralization; other parts of the Shield consist of sterile granites and gneiss which are not expected to be mineralized. Mineralization is widespread across the south-central Shield and mines have been developed where transport became available.

An interrelated mining region evolved in northeastern Ontario. Early in this century, Cobalt became a centre of mining activity from which prospectors fanned out into the surrounding Shield. By 1920, a network of mining communities, such as Kirkland Lake, Larder Lake, Timmins, Porcupine and Elk Lake, was established; they were linked by rail, road and power transmission lines. These towns were supported by a growing area of agriculture and the railways made it possible to establish pulp and paper mills. Although mines opened and closed as new ore bodies were found and old ones were exhausted, the area as a whole, including the adjoining parts of Quebec by the 1930s, consistently encompassed about half of the operating mines in the Shield. The region functioned together as a unit with its internal economy based mainly on the cluster of mines, and with its prosperity, dependent on external conditions of markets and financing.

Mines elsewhere in the Shield tend to be isolated; the main geographical pattern is one of peripheral location near the outer edge of the semicircular Shield. In two areas, however, mining regions are in a formative stage, suggesting that interconnections and functional relationships will increase there. Near the Labrador-Quebec boundary a cluster of mines evolved after 1954, based on the production and transport of iron ore. Places such as Schefferville, Labrador City, Gagnon, Fermont, Sept Îles and Port Cartier are linked together by rail lines, air transport, a few roads, hydro-power lines and the internal movement of service and professional people. Lacking in this regional economy is an internal, or nearby, agricultural base. Another sub-region is taking form near the Manitoba-Saskatchewan boundary. From an early centre at Flin Flon an outward-spreading areal pattern of mines is evolving. Most of the mines are still near the Shield edge, but outlying centres—Lynn Lake and Thompson—give hope for future northward penetration.

Forest utilization was concentrated along the south-central edge of the Shield. The southward-flowing rivers gave lumbermen access to this part in the middle of the nineteenth century. This forest was then the largest area of unused trees closest to the market of the Great Lakes region. After about 1880, lumber utilization expanded to the northwest; the desirable trees east and north of Georgian Bay were cleared out and transported to southern Ontario or across the Great Lakes to the growing American cities. By about 1910, most of the lumber trees were gone and the forest was then used for another purpose—pulpwood.



A peripheral distribution pattern of pulp and/or paper mills evolved on or near the outer edge of the Shield early in this century. Most of the mills were located in an arc zone between Quebec City and Ottawa; many of them were on the St. Lawrence lowland, at the mouth of Shield rivers from whence they obtained their water, power and pulpwood. As the external demand for newsprint increased in nearby northeastern United States, and American capital obtained cutting rights to large timber concessions, the number of pulp and paper mills increased after 1920. The distribution pattern remained peripheral to the outer Shield edge, however, but with areas of higher densities such as around Lac St. Jean. A slightly different pattern of pulp and paper mills evolved in Ontario as a result of different sizes and positions of the drainage basins. The short, southward-flowing rivers have small river basins in which to produce trees and lesser amounts of water power. Therefore, a line of dispersed mills, rather than clusters, grew from North Bay in Ontario through Sault Ste. Marie, Marathon, Nipigon, Thunder Bay, Fort Frances and Kenora to Pine Falls in Manitoba. Farther west, the Shield edge in northern Manitoba and Saskatchewan does not have a sufficient natural endowment of trees to support a local pulp and paper industry.

The mills in northeastern Ontario are an exception to the semicircular distribution pattern. When the railroad was laid across the Clay Belt around the time of World War I, it crossed northward-flowing rivers. Pulp mills could then be erected at such places as Iroquois Falls and Kapuskasing, utilizing the forests along the headwaters south of the railway and the water power of these rivers as they dropped toward James Bay. This north-central cluster of mills was extended into northwestern Quebec in the 1960s when a mill was built at Lebel-sur-Quévillon on another James Bay river.

The third major natural resource of the Shield, water power, also has a peripheral distribution along its outer edge. The hydro-power plants of the Shield have two main functions. The first is to supply power to the internal resource developments—the mines and pulp and paper mills, and their associated settlements; because many of the power plants were built when technology did not permit long-distance transmission, these power sites adjoin the mines and mills that they supplied. The second is to supply electric power for the residential, commercial and industrial needs of the growing cities of the adjoining Great Lakes–St. Lawrence Lowlands. Fortunately, the outer “fall-line” of the Shield, where outward-flowing rivers tumble over the southern escarpment, is close to the region of greatest need for power.

The evolution of the spatial pattern of hydro-power development was similar to that for mines and pulp and paper mills. The earliest sites were in the south-central edges of the Shield, and later plants were built progressively outward to the east and west along the Shield edge. Early in the twentieth century, the St. Maurice River was harnessed to supply electric power for local industries (pulp mills, chemicals, aluminum, textiles) at Shawinigan and Trois-Rivières, and also to transmit power to the lowland city of Montreal. By the 1920s, a cluster of power plants in the Saguenay River–Lac St-Jean area was producing for the local resource-based settlements and also exporting to Quebec City. By the 1950s transmission technology permitted the rivers farther east, such as the Bersimis (Betsiamites), to be tapped and the power brought to the lowlands industrial and urban region. In the late 1960s, the Manicouagan–Outardes rivers were linked into the outward-spreading areal pattern of power development. Still farther eastward, the Churchill (formerly Hamilton) River tumbles over several falls as it drops toward Hamilton Inlet in Labrador. Its utilization, to begin in 1972, will complete the eastern semicircular line of power plants along the edge of the Shield. While this peripheral pattern was being established, intensification of use was also taking place on the rivers in the central area, such as the Ottawa.

As noted previously, the drainage pattern of the Shield in Ontario and Manitoba is different from that in Quebec. In Ontario, the short, southward-flowing rivers were used





*Lowlying land stretching to the horizon in the Lac St-Jean area of Quebec is one of the few areas within the Canadian Shield suitable for agricultural pursuits.*

Malak

early in this century only to supply local resource development, but their size and volume were not sufficient to produce electric power for export to the adjoining lowland. However, Ontario was able to make use of the northward-flowing tributaries of the Moose River to supply power to industries and cities of the northeast and later, with improved transmission lines, to export electricity from the northeast to the Toronto area. To the west, the Winnipeg River drops out of the lake-dotted Shield, its power being available for local mines and mills as well as for the nearby urban market in southern Manitoba. This river performs the same power-supply functions for urban and industrial Winnipeg as do the rivers of the eastern Shield for southern Quebec cities. The Nelson is one of the few rivers to cross the Shield completely, dropping eastward from the Interior Plains to the Hudson Bay lowland. Its power is available for northern mines and its surplus can be exported southward to the larger urban markets in southern Manitoba and adjoining United States.

Agriculture is not a major activity within the Shield region. There are few large areas with a suitable physical environment for a variety of crops; in addition, the southern sections of the Shield, with the highest densities of urban people, are closest to the best agricultural land in Canada on the Great Lakes-St. Lawrence Lowlands. There is a direct areal coincidence between Shield agriculture and the level lands and better soils of the old glacial lake bottoms. Farming developed on these lacustrine soils when resource-based settlements arose nearby and became local markets. The largest areas of farming are on the Clay Belt (incorrectly so named) across the Ontario-Quebec boundary, and on the lowland around Lac St-Jean. Unlike the other resource-use patterns in the Shield, agriculture is declining areally. The number of farms, the number of farmers and the amount of cultivated acreage declined rapidly after about 1950 when jobs in the other resource industries of the Shield became more desirable. There are, however, regional differences in this decline; because of the cultural background and aims of the French-speaking settlers, they are remaining on the farms longer than settlers in some of the English-speaking areas of northern Ontario.

One of the major natural resources of the Shield is its landscapes or scenery. The totality of its natural environment, with its varying combinations of trees, lakes, rivers, hills and animal life, appeals to urban people of the adjoining Lowlands and nearby United States. Whereas the different elements of the environment are used for minerals, wood products or water power, the total environment in its "unused" form is a resource called

scenery which can be used over and over again. The other natural resources are shipped out of the Shield, but scenery brings people into the region. The areal patterns of recreational use are similar to those of the other natural resources; the south-central edges of the Shield, closest to the high densities of people on the Lowlands, have the greatest use, with decreasing intensity of use and accessibility outward along the Shield edges and in the northern interior.

The Shield is the largest geographical region of Canada. The combination of its environmental characteristics is different from other parts of the nation. Although resource-based economies and settlements are found elsewhere in Canada in small areas, the Shield has vast regions where an exploitive economy is the only activity. Another distinctive characteristic is its lack of agriculture; whereas the rest of Southern Canada has farmland in its rural landscapes, farming is a minor element in settled parts of the Shield and is totally lacking over most of it. All regions have internal diversity within their general uniformity, and so does the vast area of the Shield have sub-regional differences. For example, the northern Shield has a harsher environment and less resource potential than the southern parts; the Clay Belt of Quebec–Ontario has a different landscape appearance than the area north of the St. Lawrence estuary or the Nelson trough of northern Manitoba. Thus, to understand the Canadian Shield fully, its sections should be examined individually to see how each is a part of the whole region and yet differs somewhat from it.

### The Interior Plains

On a world scale, the words “flat, prairie, wheat, petroleum” might well characterize the environment and resources of the Interior Plains of Canada. Although these words accurately describe certain outstanding and important parts of the Plains environment and economy, they may not tell of the variety found within the region. It is true that large areas are very flat, but the landform regions include hills, escarpments, entrenched river valleys and even low mountains; although prairie grassland of varying height once covered the southern sections (prior to cultivation) more than half of the Plains region is forested; although wheat became a staple crop for export after the land was subdivided for settlement, other grains were also grown and some new crops now occupy significant acreages; although petroleum was important in diversifying the Plains economy after 1947, other fuels and minerals have since aided particular parts.

As a landform region, the Interior Plains has a landscape which is easily demarked from the low, rocky, knobby hills of the Canadian Shield to the northeast and east and from the high, sharp peaks of the Cordillera to the west. Within the Plains region a variety of micro-landform features break the monotony of the flat areas. As in other landform regions, these minor features are areally related to bedrock geology, to types of glacial deposition and to recent river erosion. For example, west of the very flat Manitoba lowland a geological escarpment of Cretaceous age rises sharply several hundred feet; it is a landform boundary which is obvious when seen from the air because the steep slopes and nearby gravel or sand ridges of former beachlines are forested and stand out from the cultivated fields. Westward, the lacustrine soils of the Regina plain are very flat but on the horizon a few flat-topped, low hills indicate areas of harder rock that have resisted erosion. In the Alberta Plateau, erosional remnants of harder, horizontal strata, such as the Cypress Hills, also rise above the generally flat surface, and into the plateau steep-sided river valleys have entrenched several hundred feet. The Alberta Foothills, along the western edge of the Interior Plains, are a narrow zone of linear hills about 4,000 feet above sea level; they introduce the traveller from the east to the majestic mountains that rise beyond.

Large areas of the Plains have generally similar climatic conditions but the variations and extremes away from the averages give a distinct regional character to the Plains climate. All of the region is very cold in winter for several weeks at a time, but the south-east and southwest sections record more moderate average monthly temperatures for two

different reasons. In the southeast, occasional warmer air masses from the Gulf of Mexico break winter's grip for a few days; in the southwest, Chinook winds are pulled down the eastern slopes of the Rockies and moderate the temperatures rapidly for several hours or a few days.

Although a map of average annual precipitation shows low precipitation of 10 to 12 inches along the central South Saskatchewan River and increasing amounts outwards, these averages mask a wide range of precipitation variability from year to year and from place to place. The averages indicate that about two inches of rain fall in a summer month but some stations have recorded five to 10 inches of heavy showers in some months whereas in other years virtually no rain may fall. Variability of precipitation is therefore more characteristic of the Interior Plains climate than in any other region of Canada; these fluctuations are well known to Prairie farmers whose economic success is so dependent on the exact amount of rain that falls in their particular area during the growing season.

Vegetation patterns are indicative of areal differences in climate. The original grasslands, of varying types, that once spread across the southern Plains, indicated the areas of lower precipitation and higher summer temperatures. Much of this natural grassland was ploughed under, despite being nature's indication that the region was marginally dry for agriculture. North of the grasslands, deciduous trees were able to survive where the average precipitation was slightly higher and summers were cooler. Probably because of the political name, Prairie Provinces, given to the region, many Canadians may have an exaggerated concept of the area of grassland and parkland across the Interior Plains. It is true that most residents live in this small zone of prairie grassland environment, but the larger northern parts of each province are forested. The coniferous forest belt that covers the northern part of the Plains differs very little from the forested landscapes of the adjoining Shield and both areas have very few settlements.

In the past, general maps of crop production were related to the distribution of soils and other environmental conditions. Brown soils lie beneath the area of short grass and low precipitation near the Saskatchewan-Alberta border; because this combination of physical conditions was less favourable to grain production, much of the land remained in natural pasture supporting the ranching industry. The dark-brown soils are around the brown soils, generally coinciding with the former zone of tall prairie grass which has slightly more precipitation. These environmental conditions were suitable for wheat but not for many other crops. The black soils form a third semicircular zone, extending through Edmonton, Prince Albert and into southern Manitoba. These excellent soils correspond to the belt of parkland vegetation, and the area of about 15 to 20 inches of precipitation. Farmers found that a greater variety of crops could be grown on the black soils in addition to wheat. The farming economy that evolved there in the inter-war period produced feed grains, oil seeds, pasture and large numbers of cattle. Northward, the soils are degrading black-to-grey wooded podsols and these underlie the Mixed Forest. Because of a shorter frost-free period and greater costs in money and time to clear the forest cover, agriculture penetrated more slowly into this different environment. After about 1940, the northern push of agriculture into the grey forest soils almost ceased; with a few exceptions, such as in the Peace River area, withdrawal has been more common than expansion.

Although the general patterns of agriculture coincided fairly closely with the environmental zones of soils, vegetation and climate until the 1940s, non-environmental factors have since had much more influence on the kind of crops grown and their areas of concentration. Crops have become more market-oriented and technology, such as the use of fertilizers and frost- and disease-resistant varieties, has decreased the environmental influences upon crop distributions. In addition, crop acreages also change from year to year for the region and also within farms as a result of political decisions concerning acreages, changes in foreign markets, consumer preferences and other external factors. But despite the growing internal variety in agricultural patterns, the distinctive agricultural characteristics of the Interior Plains are still apparent in the crops of wheat, feed grains,



flax, oil seeds and legumes. An aerial view of the large, rectangular farms with only a few crops, the widely dispersed farmhouses, and the absence of trees except near the farmhouses leaves little doubt that agriculture of the Plains region is different from that elsewhere in Canada.

The mineral resources of the sedimentary rock of the Interior Plains include all of Canada's potash, most of its petroleum, natural gas and sulphur, much of its coal, and some of its salt and gypsum. It is therefore a mining region which is distinct in the type of minerals that it sends into national and world markets. Similar to the areal patterns of development that evolved over time and area in the Shield, there is also an outward-moving pattern of oil wells on the Plains. From the first large wells found at Leduc south of Edmonton in 1947, new oil fields were located progressively farther away from the Edmonton core, such as at Redwater, Pembina and Rainbow Lake. This functional pattern is linked together by pipelines, just as the Shield mines are linked by railways, and has spread to the northwest into British Columbia and to the Athabasca Tar Sands in the northeast.

The visual impact of oil is apparent in the landscapes of the Prairie cities. The oil wells are in the rural areas or near small towns, but the head offices of the oil companies and the petroleum refineries are in the large cities. Whereas oil refineries may be less noticeable amid the larger industrial mix in the cities of Eastern Canada, on the edges of the Prairie cities they are significant elements.

The other elements in the internal urban geography of Plains cities are quite similar to eastern cities. The commercial core has arisen where the city had its first origins; older industrial zones radiate out from this core along the railway lines; new industry is located along the main highways; the residential bungalows built in the past 30 years look no different from those elsewhere in Canadian cities. There are shades in the urban land-

*A modern farm north of the city of Saskatoon in Saskatchewan, showing the rich black soil of the area which, in addition to producing excellent crops of wheat, has been found to be eminently suitable for a variety of other crops.*



George Hunter

scape, however, which help to characterize Prairie cities; because they were settled mainly in this century, there are few old buildings, narrow streets are rare and wide streets are common, and the line between urban and rural uses is quite sharp and usually has been carefully planned and controlled.

One of the distinct geographical characteristics of the Interior Plains is the geometric spacing of its villages, towns and cities. In a generally level plain with a simple economy, some of the theory concerning the expected spacing of service-centre towns can be studied in reality. The size and function of towns in southern Saskatchewan, for example, are related to the number of farmers in the surrounding area needing certain urban services. Other specialized services, needed less frequently, tend to be located in larger cities where they can serve more people locally and be available to people from a larger surrounding rural area. A map of the urban centres on the Interior Plains shows a general regularity to their spacing which is related to their size and functions. This geometric pattern is not "ideal", however, because, in addition to their service functions, there are other reasons for cities to exist, such as processing local resources, administration, etc. The size gradation of this pattern is now breaking down as road transport improves and people can travel farther for their services; the small towns and villages are declining in population as people concentrate into certain large cities.

The Interior Plains have physical environmental patterns which are different from the rest of Canada. Like the Shield, the region has large areas of generally uniform environmental conditions, but the character and combination of these elements are different from those of the Shield. The Plains have a larger area of cultivation than the Great Lakes-St. Lawrence Lowlands, but produce different crops and have a different rural settlement pattern with lower population densities. Internally, the southern part of the Plains, where settlers have turned the natural grasslands into an area of large farms and a geometric pattern of urban places, contrasts with the empty, forested northern Plains where recreation and other resource-based activities are similar to those of the adjoining sparsely populated Canadian Shield.

### The Cordillera

A mountainous region known as the Cordillera extends along western North America from south of Mexico to Alaska. Most of British Columbia and all of Yukon Territory are within the Canadian Cordillera. Great contrasts within small areas are characteristic of the natural environment of this mountainous region. It is a region of urban people, with agriculture entirely lacking over large areas or confined to certain narrow valleys or flood plains. This urban population is concentrated into one small area in the southwestern corner of British Columbia where 75 p.c. of the population lives.

The only other part of Canada with comparable spectacular landforms is the mountainous area of Baffin and Ellesmere Islands in the northeastern Arctic, but their extent is not as great as the 600 miles of peaks, ridges and valleys across southern British Columbia. Although these mountains seem to be a jumbled mass of peaks when viewed locally, and stretch endlessly to the horizon when viewed from the air, they actually have quite specific areal patterns and are subdivided into smaller sub-regional landform units. For example, despite some American and British maps which spread the name "Rocky Mountains" across much of British Columbia and even into the Yukon and Alaska, the Rockies are a specific line of mountain ranges extending from Montana in the United States along the Alberta-British Columbia border; they terminate at the broad plain of the Liard River in northeastern British Columbia. The western landform boundary of the Rockies is the Rocky Mountain Trench, one of the longest continuous valleys on the earth's surface, extending as a potential through route from Flathead Lake, Montana, to the headwaters of the Liard River in the Yukon. In contrast to the mountain ranges, the Interior, Stikine and Yukon plateaux are interior basins with generally level horizons, but locally are deeply cut by rivers and canyons.

Contrasts in climate within small areas are characteristic of all mountainous regions and the Canadian Cordillera is no exception. Because most of the weather stations are in the valley bottoms where the settlements are, these contrasts must often be inferred from vegetation differences or other indirect environmental information. The greatest amounts of precipitation recorded in Canada—more than 150 inches annually—are one of the distinctive features of some of the west-facing slopes of the Insular and Coast Mountains. And only 200 to 300 miles eastward, in the southern interior valleys of British Columbia and in southern Yukon, some of the driest stations outside of the Arctic report less than 10 inches of annual precipitation. Most of the coastal precipitation falls on the lowland settlements as rain during the winter months, and blankets the higher elevations of the nearby mountains with snow.

Coastal British Columbia is the warmest part of Canada in winter but the linear interior valleys and plateaux are open to the southward penetration of cold air masses from Alaska and settlements in these valleys record many days of below-zero winter temperatures. Winter temperatures in the interior of the Cordillera therefore differ very little from those experienced across the Interior Plains. In summer, the southwest coast is normally sunny and cool (monthly averages of 62-65°F.) for many weeks when high-pressure ridges form over it and deflect storms northward. But a few hundred miles away the southern interior valleys may be experiencing some of the hottest temperatures recorded in Canada. Thus, the coastal climate is different from the rest of Canada in both summer and winter, but the remainder of the Cordillera has climates similar to those known east of the mountains.

The vertical contrasts in climate are apparent in the horizontal zonation of vegetation on the mountain slopes. The mild and wet coastal climate has nourished the largest trees found in Canada. Because temperatures decrease with altitude and steep rocky slopes have little soil, tree size and density decrease at about 5,000 feet altitude, and generally the alpine slopes above about 6,000 feet are treeless. In northern British Columbia and central Yukon, the upper tree line is about 3,500 feet above sea level, leaving only narrow strips of forest cover along the river valleys. Although grassland is obvious to travellers through the dry valleys of southern British Columbia, it occupies only narrow strips in the valley bottoms or across small basins and the total area is not large; above the grasslands, the middle and upper slopes are forested. One of the characteristics of the Cordillera as a geographical region is its variety of physical environments within small areas but also the repetition of that variety over its large area.

Except for the cities in southwestern British Columbia, settlements throughout the Cordillera are based mainly on the exploitation of one particular natural resource. This resource-based economy is similar to that of many settlements in the Canadian Shield and the Atlantic Provinces. As in other regions of Canada, these resource developments have evolved in rather specific areal patterns.

Forestry is the main segment of British Columbia's economy. Utilization of the large trees started in the southwest and the wood-processing industry is still concentrated there. The forests on the coastal lowlands near Vancouver, Nanaimo and Victoria were cut first and the logs processed in local mills for export. As forests farther away along the coast were cut, a log-transporting technology developed to carry logs to the large mills in or near the cities around Georgia Strait. Improvements in transport technology—up to the modern self-dumping log barge—permitted the exploitation of a longer coastal hinterland to supply the urban sawmills. The mills and settlements around Georgia Strait and northward along the Inside Passage became part of an integrated, functional region linked together by movements and services related to the forest industry.

Prior to 1940, because the wood products were mainly exported by water to north-western Europe or eastern United States, the forest industry was concentrated on the coast, and mainly near the ports in the south. After 1950, increased world demand, plus improved rail and road transport into the untapped forest reserves of the interior, permitted





*A complete-circle view of Crowsnest Pass through the Rocky Mountains, close to the southern end of the Alberta-British Columbia*

an interior areal expansion of the industry. Nodes of intense utilization arose at transport junctions such as Prince George and Kamloops, and in southeastern British Columbia. The interior forest industry is now establishing geographical patterns of concentration, and corporate integration of processing, similar to that which developed on the coast prior to 1940.

The geography of the West Coast fishery is different from that on the Atlantic Coast. The five main species of salmon constitute most of the West Coast fish catch, and the industry has adapted to the natural habits and migrations of these fish. Fish canneries were established at or near the mouths of most rivers all along the coast late in the nineteenth century, but the greatest concentration of canneries was near the Fraser and Skeena rivers which had the largest drainage basins and therefore usually had the most fish production. Gradually fishing technology improved so that larger and faster fishing vessels, with better gear, could harvest a larger area away from the river mouths. Thus, the need decreased for many small dispersed canneries and the processing industry concentrated in large canneries in a few central places. By the 1960s, the former dispersed linear pattern of salmon canneries had become one of concentration at the mouths of the Skeena and Fraser rivers, where there were shipping connections for export. Whereas this process of spatial concentration is now complete on the West Coast, and was related to corporate integration and fishing technology, the process is just beginning on the East Coast of Canada.

Through more than a century of mining history, the geographical patterns of development have illustrated some consistent areal trends. From 1890 to 1905 the Kootenay sub-region of southeastern British Columbia was one of the most important mining areas of Canada while the rest of the province was struggling to create a viable economy. The southeast is well mineralized; as a mining region it functions around the large smelter-refinery at Trail to which a variety of ores can be taken for processing. The Kootenays still have the major concentration of mines in the Cordillera; abandoned mines, old slag piles and decaying houses—but also modern efficient mines and new planned towns—are significant elements in the regional landscape. Those mineralized sections of the Coast and Insular Mountains accessible to ocean transport continue to be illustrated by dots on the mining maps. In the late 1960s, the capital and markets of Japan were the stimuli for new copper and iron mines there. The dispersed and scanty pattern of mines in the Yukon illustrate the economic disadvantages of location, despite a well-known variety of mineralization. Having only a few internal transportation lines until recently, potential mines faced higher transport costs as a result of their location north of the Coast and St. Elias Mountains.



*border. A camera innovation presents this spectacular scene as it can be seen by the eye only in part as one turns around.*

Gordon J. K. Packer

The availability of hydro-electric power has aided resource development in the Cordillera, just as it did in the Canadian Shield. The Cordillera has the fortunate natural endowment of heavy precipitation, sloping landforms, many lakes for water storage and numerous rivers. To these natural elements man has added dams, turbines and transmission lines to the urban and industrial markets.

Water-power development has shown one pattern of concentration and another of dispersal. Throughout British Columbia's settlement history, the largest urban and rural populations and most industries clustered into the southwest corner. Power was first supplied to this market by small sites in the Coast Mountains near Vancouver or on short rivers on southern Vancouver Island; as transmission technology improved, power was produced at more distant sites, such as at Bridge River east of the Coast Mountains. Thus, in the southwest, a cluster of relatively small power plants evolved on short rivers near the urban and industrial markets while elsewhere in the province they were dispersed and supplied local needs only, the latter being similar to the patterns of power development in the Ontario Shield. For example, in the southeast, power for the large Trail smelter-refinery and for cities came mainly from the Kootenay River. In the northwest, the Nechako River was dammed and diverted back through a tunnel beneath the Coast Mountains to produce power at Kemano for the large aluminum smelter at Kitimat. By the late 1960s when power was being developed in the fourth corner of the province—on the Peace River of the northeast—long-distance transmission technology permitted the linking together of these dispersed sites. In the 1970s, the separate areal patterns of concentration and dispersal should become part of one large provincial network.

The preceding paragraphs have noted that the regional characteristics and areal patterns of resource development of forestry, mining and water power are similar to those of the Canadian Shield. To these similarities can be added the recreational use of the spectacular and varied environments of the Cordillera. As in the Shield, the "empty" areas of the Cordillera will have increasing value as population densities increase in the rest of the Continent. Also, as in the rugged Shield, agriculture is a minor activity in the Cordillera. Climate and soils in most valleys are favourable for agriculture and urban markets are nearby but the amount of suitable level land in the valleys is small.

Similar to the Shield, population in the Cordillera is mainly urban, the difference being in the great concentration in one area in southwestern British Columbia. Half of the population of the Cordillera lives in Greater Vancouver and another 25 p.c. lives near by in the Lower Fraser Valley and near Victoria on southern Vancouver Island. No other province has such a large share of its population in such a small area.

The differences in the internal urban geography of Vancouver compared with the other large cities of Montreal and Toronto result partly from its scenic mountain backdrop and the shape of its harbours. Other visual differences in Vancouver can be attributed to its recent areal growth which came almost entirely in this century. In some characteristics, Vancouver has the same urban landscapes as cities of Eastern Canada—the high-rise office buildings and apartments, the rows of ranch-style homes, the suburban shopping centres, and the low sprawling factories and warehouses along the outer highways. Most Canadian cities have all of these elements and what makes each city distinct is the exact internal arrangement of the land uses with relation to one another. Vancouver has its own unique patterns.

The mountainous features of the Cordillera give variety within small areas in climate, vegetation, soils, land use and settlement. The region can be characterized by natural-resource-development emphasis, similar to the Canadian Shield and, to a lesser extent, to the Atlantic Provinces. The urban development within the southwestern Cordillera is like that in metropolitan Montreal and Toronto, but British Columbia lacks the wider network of interconnected large cities that is one of the characteristics of the Great Lakes-St. Lawrence Lowlands. Within the Cordillera, the two main sub-regions are the coast with its distinctive climate and urban concentration, and the interior with its growing resource-oriented settlements. Despite the great latitudinal extent from central British Columbia to northern Yukon, there is a great deal of similarity in the environment of the interior Cordillera and in the type and sparseness of settlement. Although the coast-interior subdivision has been fundamental in the history of areal occupation of British Columbia, improved transport of the past two decades is breaking down this division and a new set of areal patterns is evolving in the province.

### **The Northwest Territories**

This region is defined by political boundaries and lacks the uniformity of certain physical or economy criteria used to define other regions of Canada. The Northwest Territories is characterized by diversity within its natural environment, lack of developed resources, scanty population and a different type of government. The lack of developed natural resources is related both to the internal poor endowment of the natural environment and to external problems of distance and accessibility.

Within the large area of the Territories there are two main environmental regions—the subarctic Mackenzie River Valley and the arctic of the northern islands and north-eastern mainland. These regions have differences in their resource potential, present populations and accessibility. The line separating arctic from subarctic is the 50-degree July isotherm; this climate line defines the arctic areas northeastward as having no summer, and the subarctic areas southward as having some summer warmth. The climate line coincides closely with a significant vegetation line—the northern limit of tree growth—and is also a cultural line separating Indians and Eskimos. Thus the arctic region has certain specific climate characteristics, is treeless and is the home of the Eskimos; the subarctic part has a different summer climate, has forest cover and is inhabited by Indians and most of the white population of the Northwest Territories.

The agricultural and forestry uses of this enormous area are minor in the subarctic and entirely lacking in the arctic sections. Coniferous trees do grow in the subarctic Mackenzie Valley but they are small, grow slowly in the short summer and are separated by numerous small areas of poor drainage—muskegs, swamps and lakes. This forest is available for lumber in the Mackenzie Valley settlements but as a natural resource it compares poorly with the larger areas of better forest south of the Territories. The unfavourable environment of the arctic region does not permit tree growth; not only are summers cool, but much of the region has bare, glacially scoured rock where soil is lacking. A natural environment in which trees cannot grow is an indication that normal agriculture would be difficult or



impossible. Undoubtedly, however, crops could be produced in the arctic region under glass cover and with imported soil if there was an economic or social need for them. More favourable summer conditions in the subarctic Mackenzie Valley permit the possibility of agriculture there. Gardens can be productive but lack of a large local market discourages agriculture as an occupation. Improved transportation enables food products to be brought in from better agricultural land southward.

Animal life on the land and in the sea has been sufficient to help support the scanty native population. This is the only region of Canada in which undomesticated animal resources are a significant element in the local economy. Game resources, such as woodland caribou, moose, fish, ducks and other birds, are still important in the food supply of the Mackenzie Valley Indians, as they have been for centuries; to the Eskimos, sea resources such as seals, walrus and white whales are staple items of diet, along with barren-ground caribou for Eskimo on the arctic mainland. For both people, however, animals now constitute a decreasing percentage of their food intake. Fur-bearing animals became important to the native economy after the white man entered the region and persuaded first the Indians and later the Eskimos to trap. The dispersed line of settlements established in the nineteenth century along the Mackenzie River were originally fur-trading posts, and some of them still have this main function. The treeless arctic has only the white fox as a fur resource, in contrast to the variety of fur-bearing animals in the forested Mackenzie Valley, and as a consequence, trapping did not become an important part of the Eskimo economy until the 1920s.

*A gold mine at Yellowknife, north of Great Slave Lake in the Northwest Territories, and within the Canadian Shield. The land is rough and rocky, laced with muskeg, and vegetation is sparse.*



George Hunter

Mineral resources are the hope that some part of the Territories will become of some significance in Canadian economy. It is underlain by parts of two geological regions—the Precambrian rocks of the Canadian Shield and the flat-lying young sedimentary rocks of the Interior Plains. The Mackenzie Valley is a landform and geological extension of the Interior Plains and may have the reserves of fuels and non-metallic minerals known to the south. Similar types of sedimentary rocks extend through certain Arctic islands where minor showings have encouraged costly oil and gas exploration. Whether or not possible future oil or gas fields will be able to compete with other fields located closer to world markets may depend on external political or company policy decisions. Different geological structures and a different mineral potential are found in the Precambrian rocks under the eastern part of the mainland and the eastern Arctic islands. Exploration there has occurred on the accessible edges, similar to the patterns in the southern Shield but on a smaller scale. In the arctic sections, development has been further hampered because water transport operates in seas that are ice-covered for nine to 12 months of the year. Although mineralization is known in the Territories, whether mining increases in significance depends on external decisions.

As in other regions of sparse population in Canada, the total natural environment, or "scenery", may attract short-term visitors. The tundra vegetation of the treeless arctic is unique in Canada; the mountains of Baffin, Devon and Ellesmere islands are the highest in eastern North America and their ice-caps and glaciers present spectacular alpine scenery; ice floes and icebergs could be a different water-travel experience for most people. The vague "lure of the North", and the chance to see a different environment and a different people—the Eskimos—may yet be one of the most valuable elements in the arctic resource base.

The former social customs and occupations of the 17,000 Canadian Eskimos are well known throughout Canada, and probably throughout the English-speaking world, but their changing geographical patterns are less well known. When the Eskimos depended mainly on local land and sea resources for their food and clothing they were a migratory people living in small groups of families; they stayed within a vaguely defined coastal area, except for a few hundred who hunted inland most of the time. When fur-trading posts were established, their hunting activities were adjusted to fit seasonal patterns of trapping and these activities became more concentrated near the trading posts. After World War II, new settlements based on air and radar bases offered opportunities for wage employment at the same time that the market for white fox furs declined. In addition, the Federal Government encouraged handicraft work of carving and painting at certain settlements. These changes in occupations caused the Eskimos to give up their migratory habits of living in snow houses and tents; they assembled into a few specific settlements where they reside in small prefabricated frame houses imported from Southern Canada. Thus, Eskimos are "urbanizing" just as other Canadians are doing farther south, and large areas of the Arctic are now completely unoccupied.

The Northwest Territories has specific characteristics that are different from other Canadian regions. It is the only region where the native population constitutes a significant element in the local human geography, and their use of animal resources is not duplicated in importance elsewhere in Canada. The exploitive economy of the white residents, most of whom live in the Mackenzie Valley, is based on minerals, furs and fish in particular places but each of these elements in the regional economy is minor in the total Canadian economy. Most of the population is "urban" and now lives in numerous, dispersed, small settlements along the Mackenzie River and around Great Bear and Great Slave lakes and also in villages along the Arctic Coast of the mainland and the southern Arctic islands. As in the Shield and the Cordillera, large areas are completely unpopulated. Internally, the major geographical sub-regions are the arctic section to the northeast—treeless, the land of the Eskimos, and having few natural resources—and the subarctic of the Mackenzie Valley, with some natural resource potential, the home of Indians and most of the white population.

## Section 1.—Geographical Facts

Canada, occupying the northern half of the North American Continent with the exception of Alaska and Greenland, is the largest country in the Western Hemisphere and the second largest in the world. The lands within its 3,851,809 sq. miles of territory are extremely diverse, ranging from the almost semi-tropical areas of the Great Lakes peninsula and the southwest Pacific Coast, wide fertile prairies and great areas of mountains, rocks and lakes to seemingly endless stretches of northern wilderness and arctic tundra. The southernmost point of the country is Middle Island in Lake Erie, at  $41^{\circ} 41' \text{ N}$ . In a straight line 2,875 miles northward, past the treeline and far into the Arctic, is Cape Columbia on Ellesmere Island, Canada's northernmost point, at  $83^{\circ} 07' \text{ N}$ . From east to west at the widest point, the straight-line distance is 3,223 miles—from Cape Spear, Newfoundland, at  $52^{\circ} 37' \text{ W}$ , to Mount St. Elias, Yukon Territory, at  $141^{\circ} \text{ W}$ .

In position, Canada is situated at the crossroads of contact with the principal powers and some of the most populous areas of the world. In the south, it borders on the United States for a distance of 3,986.8 miles. In the north, the Arctic Archipelago penetrates far into the polar basin, making Canada neighbour to northern Europe and the Union of Soviet Socialist Republics. In the east, the salient of Labrador and the Island of Newfoundland commands the shortest crossings of the North Atlantic Ocean and links Canada geographically with Britain and France. In the west, the broad arc of land between Vancouver in southern British Columbia and Whitehorse in Yukon Territory provides departure points for crossings of the North Pacific Ocean between continental North America and the Far East. The length of the Yukon—British Columbia border adjoining Alaska is 1,539.8 miles.

In size, Canada's 3,851,809 sq. miles may be compared with the area of the Soviet Union at 8,649,539 sq. miles,\* China (including Taiwan) at 3,705,408 sq. miles,\* and Brazil at 3,286,488 sq. miles.\* It is more than 40 times the size of Britain and 18 times the size of France. This immense area, which seems to afford extensive scope for settlement, imposes its own burdens and limitations. Much of the land is mountainous and rocky or is under an arctic climate. The developed portion is probably not more than one third of the total; the occupied farm land is less than 8 p.c. and the productive forest land 27 p.c. of the total. The population, estimated at 21,681,000 as at June 1, 1971, may be compared with 203,213,000† for the United States (1969) and with 90,840,000† for Brazil (1969).

Most of Canada's population lives in a corridor one to two hundred miles in width along the whole extent of the southern border. Northward, within the next two to three hundred miles, there are isolated centres established primarily for the extraction of minerals, timber or power and beyond are only the outposts of the northern territories. Thus, size and distance have permeated the lives and background of Canadians, forcing their efforts toward the solving of major problems of transportation and communication and of problems created by the existence of regions with different cultural characteristics and with different resources, culminating in divergent levels of economic progress.

The geographical knowledge of Canada is reasonably complete considering its size and its large areas of difficult access. The whole country has been surveyed and mapped at a scale of 1:250,000, which is very close to four miles to the inch, allowing a detailed depiction of relief, river systems, transportation facilities, forest cover and centres of population. Comparisons of different features and areas can be made, as all sheets of the series are drawn to the same specifications. In addition, all settled areas and regions of northern development have been mapped at larger scales, in particular at 1:50,000 or approximately one and a quarter inches to the mile, and vertical air photographs showing still more detailed depiction of the terrain are available for the whole country, varying in scale from about one inch to the mile in the Arctic to four inches, or larger, to the mile in settled areas. Details of Federal Government surveying and mapping services are given in Section 3.

\* *United Nations Statistical Yearbook, 1969.*

† *United Nations Population and Vital Statistics Report, January 1971.*



Politically, Canada is divided into ten provinces and two territories.\* Each province is sovereign in its own sphere and administers its own natural resources and upon such resources, as related to topography, position and climate, is based the economy of the province. The resources (except for game) of the Yukon and Northwest Territories, because of their remoteness, the great extent and the meagre and scattered populations of these areas, are administered by the Federal Government. The approximate land and freshwater areas of the provinces and territories are given in Table 1.

**1.—Approximate Land and Freshwater Areas, by Province or Territory**

Province or Territory	Land	Freshwater	Total	Percentage of Total Area
	sq. miles	sq. miles	sq. miles	
Newfoundland.....	143,045	13,140	156,185	4.1
Island of Newfoundland.....	41,164	2,195	43,359	1.1
Labrador.....	101,881	10,945	112,826	3.0
Prince Edward Island.....	2,184	—	2,184	0.1
Nova Scotia.....	20,402	1,023	21,425	0.6
New Brunswick.....	27,835	519	28,354	0.7
Quebec.....	523,860	71,000	594,860	15.4
Ontario.....	344,092	68,490	412,582	10.7
Manitoba.....	211,775	39,225	251,000	6.5
Saskatchewan.....	220,182	31,518	251,700	6.5
Alberta.....	248,800	6,485	255,285	6.6
British Columbia.....	359,279	6,976	366,255	9.5
Yukon Territory.....	205,346	1,730	207,076	5.4
Northwest Territories.....	1,253,438	51,465	1,304,903	33.9
Franklin.....	541,753	7,500	549,253	14.3
Keewatin.....	218,460	9,700	228,160	5.9
Mackenzie.....	493,225	34,265	527,490	13.7
<b>Canada.....</b>	<b>3,560,238</b>	<b>291,571</b>	<b>3,851,809</b>	<b>100.0</b>

The Canadian Permanent Committee on Geographical Names, administered by the Department of Energy, Mines and Resources, deals with all questions of geographical nomenclature affecting Canada and undertakes research and investigation into the origin and usage of geographical names. The Committee is composed of representatives of the federal mapping agencies and other federal agencies concerned with nomenclature and a representative appointed by each province.

The mileages in Table 2 are another indication of the size of Canada. They show the length of transportation facilities required between the larger cities, between outlying industrial communities built up around large mining or smelting projects and the nearest cities, and between northern outposts and the supplying cities.

\* The economic development of the country as a whole has formed regions quite distinct from the political divisions; these are described in an article appearing in the 1962 Year Book at pp. 17-23.

## 2.—Travel Distances between Certain Cities and Other Points of Interest in Canada

NOTE.—The dash used in this table indicates that the distance concerned is of no particular interest. In each case the mileage given is for the type of travel most generally used—road (H), rail (R), air (A) or water (W); air mileages are given for most transcontinental distances but mileage by one type of travel may be given in one direction between two points and by another type of travel in the opposite direction. All distances are given in statute miles.

From	To	Halifax	Montreal	Quebec	Ottawa	Toronto	Winnipeg	Edmon- ton	Van- couver
		miles	miles	miles	miles	miles	miles	miles	miles
St. John's, Nfld.....	W	611	W 1,201	W 1,041	A 1,098	W 1,538	A 2,006	A 2,626	A 3,111
Charlottetown, P.E.I.....	H	174	H 784	H 627	A 607	H 1,130	H 2,261	H 3,111	H 3,825
Halifax, N.S.....	—	—	H 838	H 681	A 593	H 1,184	A 1,600	A 2,288	A 2,751
Fredericton, N.B.....	H	306	H 532	H 375	A 475	—	—	—	—
Saint John, N.B.....	H	278	H 625	H 465	H 751	H 971	A 1,483	A 2,174	A 2,635
Chibougamau, Que.....	—	—	—	R 608	—	—	—	—	—
Montreal, Que.....	R	840	—	A 146	A 94	A 315	A 1,129	A 1,845	A 2,287
Quebec, Que.....	A	402	H 168	—	A 229	A 455	A 1,200	A 1,895	A 2,353
Schefferville, Que.....	—	—	R 357	R 357	—	—	—	—	—
Sept Îles, Que.....	—	—	W 495	W 335	—	—	—	—	—
Hamilton, Ont.....	—	—	H 495	W 335	—	—	—	—	—
London, Ont.....	A	884	A 403	A 543	A 314	H 108	A 898	A 1,636	A 2,030
Ottawa, Ont.....	R	956	H 126	H 294	—	H 265	A 1,049	A 1,513	A 2,207
Sudbury, Ont.....	A	841	A 348	A 447	H 309	H 270	R 970	A 1,512	A 1,944
Thunder Bay, Ont.....	—	—	W 1,215	W 1,375	R 877	W 877	R 419	R 1,214	R 1,892
Toronto, Ont.....	W	1,368	H 346	H 514	A 226	—	A 941	A 1,671	A 2,078
Windsor, Ont.....	A	998	A 509	A 649	A 420	H 226	A 861	A 1,596	A 1,972
Churchill, Man.....	—	—	—	—	—	—	R 976	—	—
Lynn Lake, Man.....	—	—	—	—	—	—	R 709	—	—
Winnipeg, Man.....	R	2,195	R 1,355	R 1,522	R 1,239	R 1,217	—	R 795	R 1,559
Regina, Sask.....	A	1,926	R 1,762	A 1,526	R 1,548	R 1,587	R 357	R 486	R 1,117
Saskatoon, Sask.....	A	2,006	A 1,553	A 1,609	A 1,477	A 1,372	R 472	R 323	R 1,087
Uranium City, Sask.....	—	—	—	—	—	—	—	A 473	A 925
Calgary, Alta.....	A	2,327	A 1,867	A 1,929	A 1,789	R 2,059	R 833	A 194	R 641
Edmonton, Alta.....	R	2,990	R 2,150	R 2,317	R 2,034	R 2,012	A 738	A 154	A 503
Fort St. John, B.C.....	—	—	—	—	—	—	—	A 349	R 728
Kitimat, B.C.....	—	—	—	—	—	—	—	—	W 484
Prince Rupert, B.C.....	—	—	—	—	—	—	—	R 959	W 549
Vancouver, B.C.....	R	3,754	R 2,914	R 3,081	R 2,770	R 2,776	A 1,158	A 503	—
Victoria, B.C.....	A	2,774	A 2,307	A 2,374	A 2,226	A 2,094	A 1,178	A 535	W 93
Dawson, Y.T.....	—	—	—	—	A 2,578	—	A 1,806	A 1,165	A 1,185
Whitehorse, Y.T.....	—	—	—	—	—	—	—	H 1,294	A 1,294
Frobisher, N.W.T.....	—	A 1,279	—	—	—	—	—	A 1,698	A 2,225
Inuvik, N.W.T.....	—	A 2,596	—	—	—	—	A 1,763	A 1,228	A 1,369
Yellowknife, N.W.T.....	—	—	—	—	A 1,927	—	A 1,085	A 633	A 976

<sup>1</sup> Via the Strait of Canso.

## Subsection 1.—Inland Waters

Every year about 8,000,000,000,000 tons of water fall on Canada in the form of rain and snow. Much of it is evaporated but a large amount drains back to the oceans as surface run-off, forming rivers and lakes along its route. This surface water, ceaselessly moving, is the dominant feature of the Canadian environment. It has been estimated, in fact, that about 7.6 p.c. of Canada's total area is covered by fresh water (Table 1). There are probably more lakes here than in any other country in the world—so many that they have never been counted. The total area of fresh water is given as 291,571 sq. miles but this figure does not include most of the small ponds, non-permanent lakes and sloughs, seasonally flooded areas or large areas of marsh and wet tundra. As much as one seventh of all the fresh, liquid, surface water in the world is contained within Canada's boundaries.

A large portion of this water is contained in the Great Lakes. About 37 p.c. of their total area is in Canada, as shown in Table 3. These lakes include some of the largest bodies of fresh water in the world, so large that they have measurable, although very slight, tides.



The Saint-Maurice, flowing southward for 237 miles into the St. Lawrence, is one of Quebec's most important rivers, esthetically and economically. The magnificent forests in its watershed support seven pulp and paper mills and the flow of its waters produces 2,000,000 kw. of electric energy. The bay in the foreground is filled with pulp logs.

### 3.—Elevations, Areas and Depths of the Great Lakes

Lake	Elevation Above IGLD (1955) <sup>1</sup>	Length	Breadth	Maximum Depth	Total Area	Area on Canadian Side of Boundary
	ft.	miles	miles	ft.	sq. miles	sq. miles
Superior (Thunder Bay).....	600.38 <sup>2</sup>	383	160	1,301	32,483	11,524
Michigan (U.S.A.).....	577.24	321	118	923	22,400	—
Huron (Goderich).....	577.24 <sup>2</sup>	247	101	748	23,860	15,353
St. Clair (Belle River).....	572.59 <sup>2</sup>	26	24	21	432	270
Erie (Port Colborne).....	570.05 <sup>2</sup>	241	57	209	9,889	4,912
Ontario (Kingston).....	244.27 <sup>2</sup>	193	53	775	7,313	3,849

<sup>1</sup> International Great Lakes Datum (1955) = Mean Water Level at Pointe au Père, Que.  
<sup>2</sup> Eight-year average.

<sup>2</sup> Ten-year average.

Other large lakes in Canada, ranging in area from 12,300 to 9,500 sq. miles, are Great Bear Lake, Great Slave Lake and Lake Winnipeg. Apart from these, notable for size, there are countless smaller lakes scattered over the major portion of Canada lying within the Canadian Shield. For example, in an area of 6,094 sq. miles, accurately mapped, south and east of Lake Winnipeg, there are 3,000 lakes; in an area of 5,294 sq. miles southwest of Reindeer Lake in Saskatchewan, there are 7,500 lakes.



Lake storage is very valuable—it represents water that can be drawn upon in time of drought to be replaced in time of plenty. Lakes are natural regulators of river flow. But the true measure of a country's water wealth is the amount of water that can be depended upon to be replaced each year—the amount that remains after evaporation has been subtracted from precipitation. This is the amount that flows in its rivers. Here, too, Canada is very fortunate. The combined mean annual flow of all its rivers has been estimated at 3,500,000 cu. feet per second—about 9 p.c. of the total flow of all the rivers of the world. Set against a population of less than 1 p.c. of the world total, this constitutes a very generous endowment of fresh water.

#### 4.—Elevations and Areas of Principal Lakes, by Province

NOTE.—Areas given are for mean water levels. For those reservoirs and lakes for which two elevations are given, HW means high water and LW low water. All elevations are in feet above mean sea level. "Total" refers to the area of the whole lake; "part" refers to the area within the designated province or territory.

Province and Lake	Elevation	Area	Province and Lake	Elevation	Area
	ft.	sq. miles		ft.	sq. miles
<b>Newfoundland—</b>			<b>Quebec—concluded</b>		
Deer.....	17	24	Saint-Pierre.....	11	142
Gander.....	82	49	Simard.....	859	73
Grand.....	284	205	Témiscamingue (total, 121) part {	589	66
Melville.....	sea level	1,133	HW	575	
Michikamau.....	1,521	566	LW	830	75
Red Indian.....	520	70	Waswanipi.....		
Victoria.....	932	15			
<b>Nova Scotia—</b>			<b>Ontario—</b>		
Bras d'Or.....	tidal	360	Abitibi (total, 369) part.....	868	313
			Big Trout Lake.....	697	264
<b>New Brunswick—</b>			Dog.....	1,380	61
Grand.....	tidal	65	Eagle.....	1,192	140
			Erie (total, 9,889) part.....	572	4,912
<b>Quebec—</b>			Huron, including Georgian Bay		
Abitibi (total, 369) part.....	868	56	(total, 23,800) part.....	580	15,353
Albanel.....	1,289	172	Lac la Croix (total, 55) part.....	1,186	25
Baskatong (reservoir).....	HW 732	109	Long.....	1,025	75
LW 677			Lower Manitou.....	1,216	60
Bienville.....	1,400	392	Mille Lacs, Lac des.....	1,496	103
Burnt (Brûlé).....	1,590	56	Mimnitaki.....	1,177	103
Cabonga (reservoir).....	HW 1,185	66	Nipigon.....	855	1,870
LW 1,169			Nipissing.....	623	350
Canisipiscou.....	1,850	210	Ontario (total, 7,313) part.....	245	3,849
Champlain (total, 360) part.....	95	18	Rainy (total, 360) part (reser-	HW 1,108	
Chibougamau.....	1,253	88	LW 1,103		291
d'Iberville.....	790	260	Red.....	1,166	71
Deux Montagnes (des).....	73	63	St. Clair (total, 432) part.....	575	270
Eau Claire (à l').....	790	535	(total, 88) part.....	154	25
Evans.....	780	180	St. Joseph.....	1,226	187
Gofland.....	810	125	Sandy.....	904	270
Indian House.....	890	125	Soul (reservoir).....	1,172	539
Kempt.....	1,372	75	Simcoe.....	718	283
Kipawa.....	884	125	Stout (Borens River).....	1,035	50
Lower Seal.....	860	130	Sturgeon (English River).....	1,342	110
Manicouagan.....	645	110	Superior (total, 32,483) part.....	602	11,524
Manoussne.....	1,340	100	Timagami.....	965	91
Matagami.....	765	88	Timiskaming (total, 121) part {	HW 589	
Minto.....	450	485	LW 575		55
Mistassini.....	1,220	840	Trout (English River).....	1,294	156
Nichicum.....	1,737	150	Woods, Lake of the (total,		
Olga.....	785	50	1,695) part (reservoir).....	1,060	953
Payne.....	430	230			
Pipmucan (reservoir).....	HW 1,305	90	<b>Manitoba—</b>		
LW 1,273			Athapapuskow.....	956	104
Plétipti.....	1,660	138	Beaverhill.....	651	70
HW 867			Cedar.....	830	517
LW 857			Clearwater (Atikameg).....	855	112
Quinze, des.....		55	Cormorant.....	840	174
Saint-François, River St.			Cross (Nelson River).....	679	274
Lawrence (total, 88) part.....	160	63	Dauphin.....	853	200
Saint-Jean.....	321	414	Dog.....	811	64
Saint-Louis.....	69	57	Gods.....	585	319

## 4.—Elevations and Areas of Principal Lakes, by Province—concluded

Province and Lake	Elevation	Area	Province and Lake	Elevation	Area
	ft.	sq. miles		ft.	sq. miles
<b>Manitoba—concluded</b>			<b>Alberta—</b>		
Goose.....	922	53	Athabasca (total, 3,120) part..	699	940
Granville.....	850	181	Beaverhill.....	2,202	80
Island.....	744	550	Buffalo.....	2,566	56
Kamuchawie (total, 57) part...	1,157	31	Calling.....	1,949	55
Kipahigan (total, 60) part.....	968	29	Claire.....	699	545
Kiskitto.....	696	65	Cold (total, 138) part.....	1,756	92
Kiskittogisu.....	709	99	Lac la Biche.....	1,784	94
Kississing.....	920	138	Lesser Slave.....	1,892	461
Manitoba.....	814	1,817	Mamawi.....	695	64
Moose.....	838	525	Peerless.....	2,269	75
Nomev (total, 80) part.....	873	8	Primrose (total, 188) part.....	1,964	78
Northern Indian.....	760	150	Sullivan (variable).....	2,651	62
Nueltin (total, 850) part.....	875	270	Utikuma.....	2,115	85
Oxford.....	612	155			
Paint.....	615	54	<b>British Columbia—</b>		
Pelican (west of Lake Winnipeg- osis).....	838	80	Adams.....	1,334	52
Playgreen.....	711	257	Atlin (total, 299) part.....	2,192	298
Red Deer (west of Lake Win- nipegosis).....	875	100	Babine.....	2,332	194
Reed.....	915	78	Chilko.....	3,842	75
Reindeer (total, 2,467) part.....	1,150	371	Eutsuk.....	2,817	96
St. Martin.....	801	125	Francois.....	2,345	91
Setting.....	737	49	Harrison.....	30	87
Sipiwek.....	601	201	Kootenay.....	1,745	168
Sisipuk (total, 103) part.....	919	71	Kotcho.....	1,970	31
Southern Indian.....	835	1,060	Lower Arrow.....	1,370	59
Swan.....	850	118	Okanagan.....	1,123	136
Talbot.....	845	72	Ootsa.....	2,666	50
Walker.....	679	62	Quesnel.....	2,380	100
Waterhen.....	829	90	Shuswap.....	1,142	120
Wekusko.....	844	64	Stuart.....	2,230	139
Winnipeg.....	713	9,465	Tagish (total, 130) part.....	2,152	78
Winnipegosis.....	833	2,103	Takla.....	2,260	102
Woods, Lake of the (total, 1,695) part (reservoir).....	1,060	69	Teslin (total, 142) part.....	2,250	58
			Upper Arrow.....	1,401	88
<b>Saskatchewan—</b>			<b>Yukon Territory—</b>		
Amisk.....	964	168	Aishihik.....	3,001	107
Athabasca (total, 3,120) part..	699	2,180	Atlin (total, 299) part.....	2,192	1
Bernard.....	1,278	72	Kluane.....	2,525	184
Black Birch.....	1,517	54	Kusawa.....	2,200	56
Candle.....	1,621	56	Laberge.....	2,100	87
Canoe.....	1,415	78	Tagish (total, 130) part.....	2,152	52
Churchill.....	1,382	213	Teslin (total, 142) part.....	2,239	84
Cold (total, 138) part.....	1,756	46			
Cree.....	1,570	446	<b>Northwest Territories—</b>		
Cumberland.....	871	98	Aberdeen.....	261	475
Deschambault.....	1,072	209	Artillery.....	1,190	153
Doré.....	1,506	248	Aylmer.....	1,230	340
Île à la Crosse.....	1,380	166	Baker.....	30	975
Kamuchawie (total, 57) part...	1,157	26	Clinton-Colden.....	1,226	253
Kipahigan (total, 60) part.....	966	31	Dubawnt.....	764	1,600
Lac la Loche.....	1,490	76	Faber.....	753	163
Lac la Plonge.....	1,476	90	Franklin.....	49	175
Last Mountain.....	1,198	552	Gras, de.....	1,365	345
Montreal.....	1,606	89	Great Bear.....	511	12,275
Nomev (total, 80) part.....	872	72	Great Slave.....	513	10,980
Nemeiben.....	1,259	63	Hardisty.....	643	107
Peter Pond.....	1,382	302	Hottah.....	640	377
Pinehouse.....	1,262	159	Kaminuriak.....	320	360
Primrose (total, 188) part.....	1,964	180	La Martre.....	870	685
Quill.....	1,703	236	Mac Kay.....	1,415	250
Reindeer (total, 2,467) part.....	1,150	2,096	Maguse.....	513	90
Saskatchewan.....	1,827	171	Marian.....	875	580
Sisipuk (total, 103) part.....	919	32	Nueltin (total, 850) part.....	350	350
Smoothstone.....	1,573	110	Nutarawit.....	501	331
Tazin.....	1,130	156	Pelly.....	1,229	295
Wollaston.....	1,300	796	Point.....	692	74
			Rae.....	292	110
			Schultz.....	496	160
			Thalintoa.....	461	860
			Yathkyed.....		

It is understandable that Canada's history of settlement and industrial development has been moulded by the influence of its great rivers. The country's first industry, the fur trade, flourished because of the ready access to the interior provided by the St. Lawrence River, the Great Lakes and their tributary streams and the many other great and small waterways. Early exploration and settlement depended on this same natural means of access. The plentiful water supplies of the flat and fertile plains of southern Ontario and Quebec attracted an industrious farming people. The river-borne transportation of lumber and later the power of water-driven turbines were vital factors in the building of the country's industrial base. Today, more than ever, water is the key to Canada's development, supplying the renewable energy required for industrial growth, providing easy and relatively cheap transport for bulk raw materials and playing a vital part in the processing of those materials.

Table 5 lists the principal rivers of Canada and their tributaries. The tributaries and sub-tributaries are indicated by indention of names; thus, the Ottawa and other rivers are shown as tributary to the St. Lawrence, and the Gatineau and other rivers as tributary to the Ottawa.

**5.—Lengths of Principal Rivers and Their Tributaries**

Drainage Basin and River	Length miles	Drainage Basin and River	Length miles
<b>Flowing into the Atlantic Ocean</b>		<b>Flowing into Hudson Bay</b>	
St. Lawrence (to head of St. Louis, Minn.)....	1,900	Nelson (to head of Bow).....	1,600
Ottawa.....	696	Saskatchewan (to head of Bow).....	1,205
Gatineau.....	240	South Saskatchewan.....	865
du Lièvre.....	205	Red Deer.....	385
Coulonge.....	135	Bow.....	315
Madawaska.....	130	Belly.....	180
Pouge.....	115	North Saskatchewan.....	760
Mississipi.....	105	Red (to head of Sheyenne).....	545
Petawawa.....	95	Assiniboine.....	590
South Nation.....	90	Souris.....	450
Dumoine.....	80	Qu'Appelle.....	475
North Nation.....	70	Winnipeg (to head of Firesteel).....	270
North Nation.....	60	English.....	330
Saguenay (to head of Peribonca).....	475	Churchill.....	1,000
Peribonca.....	280	Beaver.....	305
Mistassini.....	185	Koksoak (to head of Caniapiscau).....	660
Ashuapmucuan.....	165	Caniapiscau.....	675
Saint-Maurice.....	325	Severn (to head of Black Birch).....	610
Mattawin.....	100	Albany (to head of Cat).....	610
Manicouagan (to head of Racine de Bouleau).....	310	Dubawnt.....	580
Ottardes.....	270	Eastmain.....	510
Bersimis.....	240	Fort George (to Nichicum Lake).....	480
Richelieu.....	210	Attawapiskat.....	465
St. Francis.....	165	Kazan.....	455
Chaudière.....	120	Nottaway (to head of Waswanipi).....	400
Via the Great Lakes.....		Waswanipi.....	190
French (to head of Sturgeon).....	180	Nelson (to head of Lake Winnipeg).....	400
Sturgeon.....	110	Rupert.....	380
Grand.....	165	Red (to head of Lake Traverse).....	355
Thames.....	163	George (to Hubbard Lake).....	345
Spanish.....	153	Moose (to head of Mattagami).....	340
Trent.....	150	Abitibi.....	340
Mississagi.....	140	Mattagami.....	275
Nipigon (to head of Ombabika).....	130	Missinabi.....	265
Moir.....	60	Hayes.....	300
Thessalon.....	40	Winisk.....	295
Saint John.....	418	Whale.....	270
Romaine.....	270	Harrikanaw.....	250
Natashquan.....	241	Great Whale.....	230
Moisie.....	210	Leaf.....	165
Churchill.....	208		
Exploits.....	153	<b>Flowing into the Pacific Ocean</b>	
Naskaupi.....	152		
Canairiktok.....	139	Yukon (mouth to outlet of Tagish Lake)....	1,587
Eagle.....	138	Yukon (Int. Boundary to head of Nisutlin).....	714
Miramichi.....	135	Porcupine.....	448
Marguerite.....	130	Pelly.....	330
Gander.....	102	Stewart.....	331



## 5.—Lengths of Principal Rivers and Their Tributaries—concluded

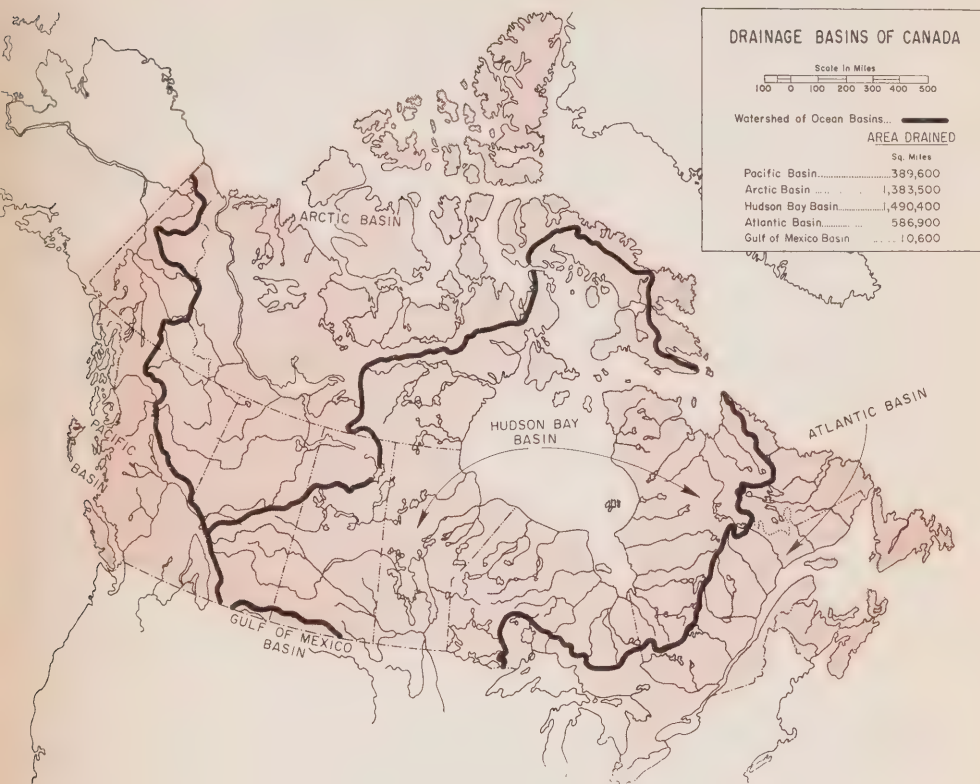
Drainage Basin and River	Length	Drainage Basin and River	Length
	miles		miles
<b>Flowing into the Pacific Ocean—concluded</b>		<b>Flowing into the Arctic Ocean</b>	
Yukon, Tagish Lake—concluded		Mackenzie (to head of Finlay).....	2,635
Yukon, Int. Boundary—concluded		Peace (to head of Finlay).....	1,195
Teslin.....	215	Finlay.....	250
White.....	161	Smoky.....	245
Columbia (total).....	1,150	Little Smoky.....	185
Columbia (in Canada).....	459	Parsnip.....	145
Kootenay (total).....	407	Athabasca.....	765
Kootenay (in Canada).....	276	Pembina.....	210
Fraser.....	850	Liard.....	755
Thompson (to head of North Thompson).....	304	South Nahanni.....	350
North Thompson.....	210	Petitot.....	295
South Thompson (to head of Shuswap).....	206	Fort Nelson.....	260
Nechako.....	287	Hay.....	530
Stuart (to head of Driftwood).....	258	Peel (to head of Ogilvie).....	425
Chilcotin.....	146	Arctic Red.....	310
West Road (Blackwater).....	141	Slave.....	258
Skeena.....	360	Twitya.....	200
Bulkley (to head of Maxam Creek).....	160	Back.....	605
Stikine.....	335	Coppermine.....	525
Alsek.....	260	Anderson.....	430
Nass.....	236	Horton.....	275

The facing map shows the major drainage basins of Canada. Probably the most important is the Atlantic drainage basin, being dominated by the Great Lakes-St. Lawrence system which drains an area of approximately 678,000 sq. miles and forms an unequalled navigable inland waterway through a region rich in natural and industrial resources. From the head of Lake Superior to Belle Isle at the entrance of the Gulf of St. Lawrence, the distance is 2,280 miles. The entire drainage area to the north of the St. Lawrence and the Great Lakes is occupied by the southern fringe of the Canadian Shield—a rugged, rocky, plateau region over the edge of which tumble many swift-flowing tributary rivers. These rivers, as well as the St. Lawrence itself, provide the electric power necessary to operate the great industries of the area. South of the St. Lawrence, the smaller rivers are important locally. The Saint John, for instance, drains a fertile area and provides most of New Brunswick's hydro power.

The Hudson Bay drainage basin is the largest in area and its main river is the Nelson. The Winnipeg River, a tributary of the Nelson, is completely developed for hydro-electric power but development of the Nelson itself is just beginning. The two branches of the Saskatchewan River, tributary to the Nelson, drain the great agricultural region of the mid-west and are now the sources of important irrigation projects.

The Arctic drainage basin is dominated by the Mackenzie, one of the world's longest rivers. It flows 2,635 miles from the head of the Finlay River to the Arctic Ocean and drains an area in the three westernmost provinces of approximately 700,000 sq. miles. Except for a 16-mile portage in Alberta, barge navigation is possible from Waterways on the Athabasca River to the mouth of the Mackenzie, a distance of 1,700 miles.

The rivers of the Pacific basin rise in the mountains of the Cordilleran Region and flow to the Pacific Ocean over tortuous, precipitous courses, rushing through steep canyons and tumbling over innumerable falls and rapids. They provide power for large hydro-electric developments and in season swarm with salmon returning inland to their spawning grounds. The Fraser River rises in the Rocky Mountains and toward its mouth flows through a rich agricultural area. The Columbia is an international river which has a total fall of 2,650 feet during its course and has thus a tremendous power potential. Although a considerable portion of the United States potential has been developed, Canadian development is relatively slight. The Yukon River is also an international river but, although the largest on the Pacific slope, is at present relatively unimportant economically.



### Subsection 2.—Coastal Waters

The coastline of Canada, measuring over 150,000 miles, is one of the longest of any country in the world; it comprises the following estimated mileages (statute):—

#### Mainland—

Atlantic, 9,707; Pacific, 4,363; Hudson Strait, 2,671; Hudson Bay, 6,233; Arctic, 12,282; other, 1,240; total, 36,496 miles.

#### Islands—

Atlantic, 17,790; Pacific, 11,620; Hudson Strait, 8,318; Hudson Bay, 6,956; Arctic, 56,677; other, 12,605; total, 113,966 miles.

A comprehensive description of the coastal waters of Canada would require information from sciences such as oceanography, marine biology and meteorology. However, the basic factor in any study of the oceanic-continental margin is the physical relief of the sea floor, and the scope of the information presented here is therefore restricted to this and a few salient features of the Atlantic, Pacific and Arctic marginal seas surrounding Canada.

**Atlantic.**—Along this coastal area, the sea has inundated valleys and lower parts of the Appalachian Mountains as well as those of the Canadian Shield. The submerged continental shelf, protruding seaward from the shore, effects the transition from continental to oceanic conditions. This shelf is distinguished by great width and diversity of relief. From the coast of Nova Scotia its width varies from 60 to 100 miles, from Newfoundland 50 to 120 miles (at the entrance of Hudson Strait), and northward it merges with that of the Arctic Ocean. The outer edge of the shelf, known as the continental shoulder, is of varying depths of from 100 to 200 fathoms before the shelf suddenly gives way to the steep declivity leading to abyssal depths. The over-all gradient of the Atlantic continental shelf is slight but the whole area is studded with shoals, plateaux, banks, ridges and islands and the coasts of Nova Scotia and Newfoundland are rugged and fringed with islets and shoals. Off Nova Scotia, the 40-fathom line lies at an average of 12 miles from the shore and constitutes the danger line for coastal shipping. The whole floor of the marginal sea appears to be traversed by channels and gullies cutting well into the shelf.

The main topographical features of the Atlantic marginal sea floor are attributed to glacial origin but land erosion is an important factor. Eroded materials are carried seaward by rivers, ice and wind, and wave action against cliffs and shore banks washes away enormous masses that are deposited over the surrounding sea floor. The topography of the continental sea floor is therefore constantly changing and navigation charts of Canada's eastern seaboard must be continuously revised.

Hudson Bay and Hudson Strait bite deeply into the Continent. Hudson Bay is an inland sea 317,501 sq. miles in area having an average depth of about 70 fathoms; the greatest charted depth in the centre of the Bay is 141 fathoms. Hudson Strait separates Baffin Island from the continental coast and connects Hudson Bay with the Atlantic Ocean. It is 430 miles long and from 37 to 120 miles wide and its greatest charted depth of 481 fathoms is close inside the Atlantic entrance. Great irregularities of the sea floor are indicated but, except in inshore waters, few navigation hazards have been located.

**Pacific.**—The marginal sea of the Pacific differs strikingly from the other marine zones of Canada. The hydrography of British Columbia is characterized by bold, abrupt relief—a repetition of the mountainous landscape. Numerous inlets penetrate the mountainous coasts for distances of 50 to 75 miles. They are usually a mile or two in width and of considerable depth, with steep canyon-like sides. From the islet-strewn coast, the continental shelf extends from 50 to 100 sea miles to its oceanward limit where depths of about 200 fathoms are found. There the sea floor drops rapidly to the Pacific deeps, parts of the western slopes of Vancouver Island and the Queen Charlotte Islands lying only four miles and one mile, respectively, from the edge of the declivity. These great detached land masses are the dominant features of the Pacific marginal sea. As is to be expected in a region so irregular in hydrographic relief, shoals and pinnacle rocks are numerous, necessitating cautious navigation.

**Arctic.**—The submerged plateau extending from the northern coast of North America is a major part of the great continental shelf surrounding the Arctic Ocean, on which lie all the Arctic islands of Canada, Greenland, and most of the Arctic islands of Europe and Asia. This shelf is most uniformly developed north of Siberia, where it is about 500 miles wide; north of North America it surrounds the western islands of the Archipelago and extends 50 to 300 miles seaward from the outermost islands.

The floor of the submerged part of this continental margin is nearly flat to gently undulating, with here and there isolated rises or hollows. Most of it has an average slope, seaward, of about one half a degree, with an abrupt break at the outer edge, to the conti-



mental slope whose declivity is commonly six degrees or more. From the Alaskan border eastward to the mouth of the Mackenzie River the shelf is shallow and continuous with the coastal plain on the mainland; the outer edge of the shelf, or continental shoulder, lies at a depth of about 35 fathoms and about 40 nautical miles offshore. This shelf is continuous with that north of Alaska and Siberia. Near the western edge of the Mackenzie River delta, the continental shelf is indented by a deep valley (the so-called Herschel Sea Canyon) whose head comes within 15 miles of the coast. Between Herschel Sea Canyon and Amundsen Gulf, the typical features of the continental shelf are replaced by the submerged portion of the Mackenzie River delta, which forms a great pock-marked undersea plain, mostly less than 30 fathoms deep, up to 75 nautical miles wide and 250 miles long.

North and east of the submerged portion of Mackenzie River delta, the continental shelf, while typical in form, is more deeply submerged than that off the mainland and Alaska. Its gently undulating surface is, for the most part, 200 fathoms or more below sea level, and the well-defined, nearly straight continental shoulder is mostly more than 300 fathoms deep, giving way to the smooth continental slope which extends without significant interruption to the floor of the abyssal Canada Basin at a depth of about 2,000 fathoms. The deeply submerged continental shelf extends along the entire west coast of the Canadian Arctic Archipelago from Banks Island to Greenland. All of the major channels between the islands—Amundsen Gulf, M'Clure Strait, Prince Gustav Adolf Sea, Peary Channel, Sverdrup Channel and Nansen Sound—have flattish floors at about the same depth as the shelf and appear to enter it "at grade", although there are a few local irregularities that may be the result of glacial action. No deep indentations or canyons are known to cut the continental slope or continental shelf off the Archipelago, except one sinuous canyon that heads off Robeson Channel at the northeastern end, close to the coast of Greenland. The submerged sides of the channels of the Archipelago, and the slopes from the shoreline at the western edge of the islands to the inner edge of the deeply submerged shelf, are in many places marked by a series of steps or terraces.

The continental shelf bordering the Arctic Ocean as well as the adjacent mainland, particularly near the delta of the Mackenzie River, and the islands of the Canadian Arctic Archipelago have been subjected to increasingly intensive scientific study and mineral resource exploration during the past 15 years. Co-ordinated and continuing programs of research and survey have studied the bedrock geology, the development of the terrain, the sediments on the sea floor and the nature and history of the icecaps. Gravity, seismic, aeromagnetic, geomagnetic and geothermal investigations have obtained information on the physical characteristics and structure of the rocks beneath the surface, and the nature and stability of the crust underlying the islands, the continental shelf and the continental slope. A complementary program of geodetic, topographic and hydrographic surveys has provided the necessary background maps and charts, and information about both terrestrial and marine physiography for these studies. Along with the technical surveys and investigations in the physical sciences, there have been less intensive but very relevant studies of the biology of the Arctic lands and oceans. The result of all these activities is that a great deal of reliable scientific information in a wide range of subjects is now available for an area about which very little was known two decades ago.

Much of this activity has been spurred by geological indications that conditions were favourable for the accumulation of petroleum deposits in the thick assemblages of sedimentary rocks bordering the Arctic Ocean. By 1960, petroleum exploration permits had been filed for essentially all of the land areas of the western Canadian Arctic Coast and Archipelago, and it was becoming apparent that the favourable geological conditions continued under many of the channels between the islands and under almost all of the con-

tinental shelf south of Sverdrup Channel. By 1970, exploration permits had been taken up over virtually all of this area, and over a large part of the upper portion of the continental slope. A vigorous program of geophysical and geological exploration is being pursued by the oil industry and many studies are under way in connection with the engineering and technical problems of development and transport in the arctic environment and ice-covered ocean. The role of the investigations of the Canadian Government is consequently no longer one of finding potentially favourable areas or of stimulating interest in the resources of the region; it is one of providing wise management, of learning enough about the Arctic environment, both marine and terrestrial, and its processes so that the operations connected with resource development and transport can be as safe and efficient as possible, without undue undesirable effects on the arctic terrain and ocean and its wildlife, and so that the resources of the area can be used to the greatest long-term good of the residents of the area, particularly the native peoples, and of the people of Canada as a whole. The present researches and surveys are therefore placing emphasis on charting possible shipping routes for supertankers or cargo submarines; on studying the nature and behaviour of sea ice and its effects on vessels and structures; on the problems of prevention and control of oil pollution in cold and ice-covered waters; and on the problems of constructing harbours, townsites, pipelines and overland transportation routes along the Arctic Coast. Study is being given to the unique ecosystems that have developed in the Arctic environment and their susceptibility to violent upset by relatively minor human activities. It is being realized that one of the greatest resources of Canada is its relatively unspoiled Arctic Coast, its unpolluted Arctic Ocean, and the present inhospitable but untrammelled free space and natural wildlife of the Arctic lands and oceans. The value of this resource to man, if it is not destroyed, will grow with each passing generation as free, open and unpolluted lands and waters become more scarce and more expensive to regain elsewhere in the world. It is the aim of the present researchers to facilitate the wise use of these present economic resources without at the same time adversely affecting its permanent value.

### Subsection 3.—Islands

The largest islands of Canada are in the North and all experience an arctic climate. The northern group extends from the islands in James Bay to Ellesmere Island which reaches 83° 07' N. Those in the District of Franklin lie north of the mainland of Canada and are generally referred to as the Canadian Arctic Archipelago; those in the extreme north—lying north of the M'Clure Strait—Viscount Melville Sound—Barrow Strait—Lancaster Sound water passage—are known as the Queen Elizabeth Islands.

On the West Coast, Vancouver Island and the Queen Charlotte Islands are the largest and the most important but the coastal waters are studded with many small rocky islands.

The Island of Newfoundland forming part of the Province of Newfoundland, the Province of Prince Edward Island, Cape Breton Island forming part of the Province of Nova Scotia, Grand Manan and Campobello Islands forming part of the Province of New Brunswick, and Anticosti Island and the Magdalen group included in the Province of Quebec are the largest islands off the East Coast.

Notable islands of the inland waters include Manitoulin Island (1,068 sq. miles in area) lying in Lake Huron, the so-called Thirty Thousand Islands of Georgian Bay and the Thousand Islands in the outlet from Lake Ontario into the St. Lawrence River.

## 6.—Areas of Principal Islands, by Region

Region and Island	Area	Region and Island	Area
	sq. miles		sq. miles
<b>Arctic Archipelago—</b>		<b>Hudson Bay and Strait—concluded</b>	
Northern Region (Queen Elizabeth Islands)		Mansel	1,228
Ellesmere	75,767	Akimiski	1,159
Devon	21,331	Flaherty	612
Axel Heiberg	16,671	Nottingham	530
Melville	16,274	Resolution	392
Bathurst	6,194	Vansittart	379
Prince Patrick	6,119	Akpatok	349
Ellef Ringnes	4,361	Salisbury	311
Cornwallis	2,701	Big	310
Amund Ringnes	2,029	White	305
Mackenzie King	1,949	Loks Land	162
Borden	1,079		
Cornwall	872	<b>Pacific Coast—</b>	
Eglinton	595	Vancouver	12,079
Graham	532	Graham	2,456
Lougheed	505	Moresby	1,007
Byam Martin	444	Princess Royal	869
Ile Vanier	435	Pitt	531
Cameron	409	Banks	382
Meighen	369	King	312
Brock	295	Porcher	201
King Christian	249	Nootka	197
North Kent	228	Aristazabal	162
Emerald	212	Gilford	148
Alexander	187	Hawkesbury	141
Massey	167	Hunter	140
<b>Southern Region (south to Arctic Circle)—</b>		Calvert	127
Baffin	265,949 <sup>1</sup>	Texada	115
Victoria	83,896	Swindle	110
Banks	27,038	McCauley	106
Prince of Wales	12,872	Louise	106
Somerset	9,570	Quadra	104
King William	5,062	Gil	91
Bylot	4,273	Roderick	90
Prince Charles	3,676	Pearse	85
Stefansson	1,723	Gribbell	78
Richards	836	Saltspring	72
Air Force	664	Lyell	68
Wales	439		
Rowley	421	<b>Atlantic Coast—</b>	
Russell	363	<b>Newfoundland—</b>	
Jens Munk	355	<b>Labrador Coast—</b>	
Langley and Ellice	301	South Aulatsivik	176
Bray	266	Killinek	104
Foley	246	Tuungayualok	72
Royal Geographic Society Islands	235	Paul	69
Sillem	186	<b>Island—</b>	
Matty	184	Newfoundland	43,359
Spicer Islands	177	Fogo	95
Koch	177	New World	73
Jenny Lind	162		
Prescott	159	<b>Gulf of St. Lawrence—</b>	
Crown Prince Frederick	155	Cape Breton	3,981
Melbourne	147	Anticosti	3,066
Harrison Islands	123	Prince Edward	2,184
		Magdalen group	88
		Shippegan	58
<b>Hudson Bay and Strait—</b>			
Southampton	15,913	<b>Bay of Fundy—</b>	
Coats	2,123	Grand Manan	53

<sup>1</sup> Includes that part of Baffin Island (70,021 sq. miles) lying south of the Arctic Circle.

## Subsection 4.—Mountains and Other Heights

The predominant geographical feature in Canada is the great Cordilleran Mountain System which contains many peaks over 10,000 feet in height. The highest peak in Canada is Mount Logan in the St. Elias Mountains of Yukon Territory, which rises 19,850 feet



above sea level. The highest elevations in all parts of the country are shown in Table 7 in feet above mean sea level.

### 7.—Principal Heights in each Province and Territory

NOTE.—Certain peaks, indicated by an asterisk (\*), form part of the boundary between political divisions. Although their bases technically form part of both areas, they are listed only under one to avoid duplication. Elevations are given in feet above mean sea level.

Province and Height	Elevation	Province and Height	Elevation
	ft.		ft.
<b>Newfoundland</b>		<b>Quebec—concluded</b>	
Long Range Mountains—		Monteregian Hills—	
Lewis Hills.....	2,672	Brome Mountain.....	1,750
Gros Morne.....	2,644	Shefford Mountain.....	1,700
Mount St. Gregory.....	2,251	Mont Saint-Hilaire.....	1,350
Gros Paté.....	2,152	Yamaska Mountain.....	1,350
Blue Mountain.....	2,128	Rougemont.....	1,100
Table Mountain.....	1,900-1,950	Mont Royal.....	763
Blue Hills of Couteau—		Mont Saint-Grégoire.....	750
Peter Snout.....	1,600-1,650	Mont Saint-Bruno.....	600
Central Highlands—			
Main Topsail.....	1,822		
Mizzen Topsail.....	1,761		
Torngat Mountains—		<b>Ontario</b>	
Cirque Mountain.....	5,160	Ogidaki Mountain.....	2,183
Mount Cladonia.....	4,725	Batchawana Mountain.....	2,142
Mount Elliot.....	4,550	Tip Top Mountain.....	2,099
Mount Tetragona.....	4,500	Niagara Escarpment—	
Quartzite Mountain.....	3,930	Osler Bluff.....	1,675
Blow Me Down Mountain.....	3,880	Blue Mountains.....	1,650
Kaumaiket Mountains—		Caledon Mountain.....	1,400
Bishops Mire.....	4,060	High Hill.....	1,163
Finger Hill.....	3,390	Mount Nemo.....	1,000
<b>Nova Scotia</b>		<b>Manitoba</b>	
(Spot height—Cape Breton).....	1,747	Baldy Mountain.....	2,729
Frane.....	1,405	Porcupine Hills.....	2,700
Nutby Mountain (Cobequid).....	1,204	Riding Mountain.....	2,000
Dalhousie Mountain (Cobequid).....	1,115		
North Mountain (4 miles NE of West Bay Road).....	875	<b>Saskatchewan</b>	
Sporting Mountain.....	675	Cypress Hills.....	4,567 <sup>1</sup>
		Wood Mountain.....	3,275
		Vermilion Hills.....	2,500
<b>New Brunswick</b>			
Mount Carleton.....	2,690	<b>Alberta</b>	
Moose Mountain.....	1,490	Rocky Mountains—	
		*Mount Columbia.....	12,294 <sup>2</sup>
<b>Quebec</b>		The Twins.....	12,085
(Spot height—Torngat Mountains).....	5,100	Mount Alberta.....	11,874
Appalachian Mountains—		*Mount Assiniboine.....	11,870 <sup>2</sup>
Mont Jacques-Cartier (Shickshocks)...	4,160	Mount Forbes.....	11,852
Mont Richardson.....	3,887	Mount Temple.....	11,626
Mont Albert—		Mount Kitchener.....	11,500
Albert Nord.....	3,554	*Mount Lyell.....	11,495 <sup>2</sup>
Albert Sud.....	3,775	*Mount Hungabee.....	11,457 <sup>2</sup>
Mont Logan.....	3,700	Mount Athabasca.....	11,452
Mégantic Mountain.....	3,550	*Mount King Edward.....	11,400 <sup>2</sup>
Mattawa Mountain.....	3,500	Mount Bazeau.....	11,366
Bayfield Mountain.....	3,470	*Mount Victoria.....	11,365 <sup>2</sup>
Roundtop (Sutton Mountains).....	3,175	*Snow Dome.....	11,340 <sup>2</sup>
Hereford Mountain.....	2,775	Stutfield Peak.....	11,320
Barn Mountain.....	2,750	*Mount Joffre.....	11,316 <sup>2</sup>
Orford Mountain.....	2,750	*Deltaform Mountain.....	11,235 <sup>2</sup>
Pinnacle Mountain.....	2,200	Mount Lefroy.....	11,230 <sup>2</sup>
Shield—		*Mount Alexandra.....	11,214 <sup>2</sup>
Mont Tremblant.....	2,900	*Mount Sir Douglas.....	11,174 <sup>2</sup>
Mont Sainte-Anne.....	2,625	Mount Woolley.....	11,170
Mont Sir Wilfrid.....	2,569	*Lunette Peak.....	11,150 <sup>2</sup>
		Mount Hector.....	11,148

For footnotes, see end of table.

## 7.—Principal Heights in each Province and Territory—concluded

Province and Height	Elevation	Province and Height	Elevation
	ft.		ft.
<b>Alberta—concluded</b>		<b>British Columbia—concluded</b>	
Rocky Mountains—concluded		Rocky Mountains—concluded	
Diadem Peak.....	11,060	Mount Gordon.....	10,346
Mount Edith Cavell.....	11,033	The President.....	10,297
Mount Fryatt.....	11,026	Odaray Mountain.....	10,175
Mount Chown.....	10,930	Mount Laussedat.....	10,035
Mount Wilson.....	10,700	Mount Burgess.....	8,473
Clearwater Mountain.....	10,420		
Mount Coleman.....	10,286		
Eiffel Peak.....	10,101		
Pinnacle Mountain.....	10,062		
Mount Rundle.....	9,838		
The Three Sisters.....	9,744		
Mount Eisenhower.....	9,030		
Mount Edith.....	8,380		
<b>British Columbia</b>		<b>Yukon Territory</b>	
Vancouver Island Ranges—		St. Elias Mountains—	
Mount Albert Edward.....	6,868	Mount Logan.....	19,850
Mount Arrowsmith.....	5,962	*Mount St. Elias.....	18,008 <sup>4</sup>
Coast Mountains—		Lucania Mountain.....	17,147
Mount Waddington.....	13,280	King Peak.....	17,130
St. Elias Mountains—		Mount Steele.....	16,644
*Mount Fairweather.....	15,300 <sup>3</sup>	Mount Wood.....	15,885
*Mount Root.....	12,860 <sup>3</sup>	*Mount Vancouver.....	15,700 <sup>4</sup>
Columbia Mountains—		*Mount Hubbard.....	15,013 <sup>4</sup>
Monashee Mountains—		Mount Walsh.....	14,780
Mount Begbie.....	8,956	*Mount Alverstone.....	14,500 <sup>4</sup>
Storm Hill.....	5,300	McArthur Peak.....	14,253
Selkirk Mountains—		Mount Augusta.....	14,100
Mount Dawson.....	11,023	Mount Kennedy.....	13,905
Adamant Mountain.....	10,980	Mount Strickland.....	13,818
Grand Mountain.....	10,842	Mount Newton.....	13,811
Iconoclast Mountain.....	10,646	Mount Cook.....	13,760
Mount Rogers.....	10,546	Mount Craig.....	13,250
Rocky Mountains—		Badham Mountain.....	12,625
Mount Robson.....	12,972	Mount Malaspina.....	12,150
Mount Clemenceau.....	12,001	Mount Seattle.....	10,082
Mount Goodsir.....	11,686		
Mount Bryce.....	11,507		
Resplendent Mountain.....	11,240		
Mount King George.....	11,226		
Consolation Mountain.....	11,200		
The Helmet.....	11,160		
Whitehorn Mountain.....	11,130		
Mount Huber.....	11,051		
Mount Freshfield.....	10,945		
Mount Mummery.....	10,918		
Mount Vaux.....	10,891		
*Mount Ball.....	10,865 <sup>2</sup>		
Mount Geikie.....	10,843		
Bush Mountain.....	10,770		
Mount Sir Alexander.....	10,740		
Churchill Peak.....	10,500		
Mount Stephen.....	10,495		
Cathedral Mountain.....	10,464		
		<b>Northwest Territories</b>	
		Arctic Islands—	
		Baffin—	
		Penny Ice Cap.....	6,700
		Mount Thule.....	6,200
		Cockscomb Mountain.....	5,300
		Barnes Ice Cap.....	3,700
		Knife Edge Mountain.....	2,490
		Banks—	
		Durham Heights.....	2,400
		Devon—	
		Ice Cap.....	6,300
		Ellesmere—	
		Barbeau Peak.....	8,540 <sup>5</sup>
		Commonwealth Mountain.....	7,500
		Mount Jeffers.....	6,500
		Mount Wood.....	4,700
		Mount Cheops.....	4,600
		Mackenzie King—	
		Leffingwell Crags.....	450
		Victoria—	
		Shaler Mountains.....	2,150
		Mount Bumpus.....	1,700

<sup>1</sup> The summit of the Cypress Hills, with an elevation of 4,810 feet, is in Alberta.  
<sup>2</sup> Part of the British Columbia-Alaska boundary.  
<sup>3</sup> Part of the British Columbia-Alaska boundary.  
<sup>4</sup> Part of the Yukon-Alaska boundary.  
<sup>5</sup> Highest point on the Canadian Arctic Islands.

## Section 2.—Geology

The 1967 Canada Year Book, at pp. 19-32, carried a detailed article on "Geology and Economic Minerals of Canada", which was prepared by W. D. McCartney of the Geological Survey of Canada. Subsequent editions of the Year Book carried an outline extracted from that article to which the reader is referred for general information on the geology of Canada, the latest appearing at pp. 17-23 of the 1970-71 edition.

### Section 3.—Federal Government Surveying and Mapping\*

The needs for maps and surveys of Canada are met mainly by the Department of Energy, Mines and Resources. Although not all Branches of this Department make surveys and compile maps, many of them are involved in such work either wholly or partly. They compile topographical, geological and aeromagnetic maps, aeronautical charts and specialized maps showing electoral district boundaries, land use and other features. In carrying out these tasks, the Department is guided partly by long-range plans based on general national needs and partly by requests from other government agencies and private enterprise. Some types of maps and surveys are also produced by provincial and private agencies and, to avoid duplication, the Department co-ordinates its work with these bodies. Other types—such as aeronautical charts—are produced exclusively by the Department.

The staff of the Department numbers about 2,700, half of whom are scientists, engineers and technicians. Each year, some 500 men are sent into the field to make surveys and to carry out research. Of the various Branches, the following are particularly concerned with surveying and mapping: Surveys and Mapping Branch (geodetic and topographic surveys, legal surveys of Canada lands, geographical atlases, electoral maps and aeronautical charts); Geological Survey of Canada (geological features); and Earth Physics Branch (geophysical maps).

**Types of Surveys.**—In the field of geodesy, the Geodetic Survey maintains a network of horizontal and vertical control points across Canada. Much of its present activity is centred on achieving greater density of control and closing gaps in Southern Canada. The ultimate goal is the establishment of at least one horizontal and vertical control point within 10 miles of any point in established and economically important areas. During the 1970 survey season, 32 field parties were involved in this activity.

The Topographical Survey is proceeding with the compilation of topographical maps. The mapping of Canada at the scale of four miles to one inch is complete, this series will be revised and updated from time to time. On the scale of one mile to one and a quarter inches, 5,000 map sheets are available of a planned 13,150. Sheets published to date (August 1971) cover most of the settled areas of Canada and certain wilderness areas of interest because of resources or defence requirements. On the relatively large scale of one mile to two and a half inches, 800 maps are available, covering all major cities and their suburbs. Wide acceptance has been found for photomaps, a relatively new map-type made possible by advances in air photography and photogrammetry. The Topographical Survey relies mostly on aerial photography in mapping and does not send out field parties.

The Legal Surveys Division is responsible for the technical management of legal surveys of land under federal jurisdiction, such as the northern Territories, national parks and Indian reserves. It also executes such surveys on behalf of administering departments, collaborates in the demarcation of provincial boundaries, prepares descriptions of electoral districts and generally provides land-surveying services to other departments. During the 1970 surveying season, this Division sent out 15 field parties.

The Surveys and Mapping Branch is the major agency in Canada for the preparation of aeronautical charts showing airports, airways and radio and other aids necessary for air navigation. As a service to map-makers, prospectors, engineers, foresters, town planners and others interested in that field, the Department maintains a National Air Photo Library containing a collection of all air photographs taken by or for the Federal Government—about 3,445,000 black-and-white prints and 22,300 colour prints. During the course of a year, the Library may receive requests for as many as 1,000,000 copies of such prints. A western branch of the Library located in the Institute of Sedimentary and Petroleum Geology in Calgary has a stock of 594,000 black-and-white and 134 colour prints.

\* Prepared by the Public Relations and Information Services, Department of Energy, Mines and Resources, Ottawa.



Geological surveys provide an inventory of the potential resources of Canada, aid in the discovery of mineral deposits, and assist in other aspects of the national economy influenced by geological factors. Each year, over 100 parties are placed in the field. Large reconnaissance projects are mounted in the northern regions of the country, and more detailed investigations in the better-known southern areas. Geological maps are published either separately or, more commonly, as part of scientific papers.

Both the Geological Survey and the Earth Physics Branch carry out geophysical surveys, resulting in maps showing such features as variations in terrestrial magnetism, gravity and seismology. The geophysicists of the Geological Survey are interested mainly in outlining local magnetic variations indicative of mineral deposits, while those of the Earth Physics Branch map the earth's total magnetic field. The Earth Physics Branch operates 23 first-order and six second-order seismic observatories throughout Canada, whose records are used in compiling and updating an earthquake zoning map of Canada of interest to architects and engineers. A gravity map of Canada is also being published and updated.

In the drafting and printing of the maps, highly advanced techniques for the automatic transfer of terrain features from air photos to drafting sheets and precise lithographing are combined to assure speedy processing of field data and the production of colourful, easily understood and relatively inexpensive maps for every type of user, from vacationer to town planner and from prospector to pilot. The Department operates a large modern plant to print the maps and charts compiled by its several Branches and by other government departments and agencies. The Surveys and Mapping Branch has a stock of 22,200,000 maps from which it distributes about 4,000,000 annually.

## Section 4.—Archaeology

The 1968 Year Book contains a special article on "Archaeology in Canada", prepared by scientists of the National Museum of Man, National Museums of Canada. The article is a review of the study of Canadian prehistory and summarizes the interpretations made, up to the point of writing, of findings by scientists working in this discipline throughout the years. The 1969 and 1970-71 Year Books covered the archaeological work undertaken in Eastern, Western and Northern Canada by the National Museum of Man staff and contract-supported field work conducted during 1968 and 1969 and the following paragraphs outline the work undertaken in the same areas during 1970 and 1971.

### 1970

**Archaeological Work in Eastern Canada.**—J. V. Wright excavated the stratified Knechtel II site on the Lake Huron shore of Bruce County, Ont. The five separate Archaic occupations range in time from 1000 B.C. to 1500 B.C. and the bone refuse from the site indicate that it functioned as a seasonal fishing station. The same archaeologist carried out a settlement pattern study of the Roebuck site located 50 miles south of Ottawa. Nine definite longhouses, ranging in length from 57 to 130 feet, were completely or partially exposed on this mid-sixteenth-century St. Lawrence Iroquois site.

D. Sanger excavated a number of sites in the Passamaquoddy Bay region of New Brunswick. Sufficient information was gathered to trace the prehistory of the area with some accuracy back to 500 B.C. Closely related to culture change in the region are shoreline changes due to sea-level rise and coastal subsidence. Sixty "Red Paint" burials were uncovered at the Cow Point site, Grand Lake, and, although very little bone survived the acid soil, nearly 400 stone tools buried with the dead were recovered from this 1500 B.C. burial site.

R. Marois discovered five sites in the Lake Abitibi region of Quebec. Most of the sites appeared to be late and, indeed, a number produced European trade goods. The stone tools, however, exhibited little change through time and these late sites may represent a continuation of the Shield Archaic tradition. If this should be the case, a direct association between the Shield Archaic and Algonkian-speaking peoples will have been established.

Contract-supported work in Eastern Canada included the following: K. C. A. Dawson, Lakehead University, carried out excavations at the Martin Bird site in northern Ontario; H. Devereux, University of Calgary, excavated a site on Red Indian Lake in Newfoundland; J. Keenlyside, University of Calgary, conducted an archaeological survey along the east coast of New Brunswick from the Pokemouche River to the Miramichi River; U. Linnaemae, University of Calgary, conducted an archaeological survey of Placentia and Trinity bays, southeastern Newfoundland; B. Preston, Nova Scotia Museum, surveyed and excavated on the Shubenacadie River drainage in Nova Scotia; and A. Tyyska, University of Toronto, carried out salvage operations at various Iroquois sites in Ontario.

**Archaeological Work in Western Canada.**—G. F. MacDonald collected approximately 60,000 lb. of shell midden from a coastal site in northern British Columbia to be used in the reconstruction of a typical shell midden planned for a new gallery in the National Museum of Man. The stratigraphic reconstruction, spanning 5,000 years of occupation of a Tsimshian winter village, will provide a backdrop for the exhibit on archaeological methods. The abandoned Haida villages of Ninstints, Kaisun and Chaatl were mapped at the same time.

R. Wilmeth conducted a brief survey at Anahim Lake, the Dean River and Nimpo Lake in the British Columbia plateau. Additional historic Chilcotin and earlier sites were recorded.

Contract-supported work in Western Canada included the following: K. Ames, Washington State University, conducted archaeological excavations at the Hagwilget site in British Columbia; C. E. Borden, University of British Columbia, investigated an early pebble tool complex near Yale in British Columbia; P. F. Donahue, University of Wisconsin, investigated ecological and cultural changes resulting from the fur trade in west-central British Columbia through test excavations at Kluskus and Algatecho; R. Inglis, Trent University, carried out excavations of waterlogged sites at Prince Rupert Harbour in British Columbia; T. C. Losey, University of Alberta, carried out excavations at the Cormie Ranch site near Edmonton in Alberta; J. F. V. Millar, University of Saskatchewan, conducted an archaeological survey at Takla and Bear Lakes in the southern Omineca District of British Columbia; D. B. Penny, University of Manitoba, conducted a survey on the upper Winnipeg River in Manitoba; B. Reeves, University of Calgary, carried out salvage operations at a buffalo jump near Calgary in Alberta; A. H. Stryd, University of Calgary, conducted housepit excavations in the vicinity of Lillooet in British Columbia; E. L. Syms, University of Alberta, conducted survey and testing in the Gainsborough Creek area of southwestern Manitoba; David Wyatt, University of Toronto, conducted archaeological excavations in the Nicola Valley of British Columbia.

**Archaeological Work in Northern Canada.**—J. V. Wright carried out an archaeological survey of the lower Back River–Lake Franklin area of northern Keewatin District in the Northwest Territories. Only late prehistoric and historic Eskimo remains were encountered and the farther the survey party moved into the interior the thinner became the evidence of human occupation. The total absence of Indian caribou hunter remains, so typical of the middle and southern Keewatin District, reinforces the hypothesis that the aforementioned groups stayed within range of the forest and exploited the barren lands only on a seasonal basis.

R. J. McGhee conducted an archaeological survey in the Mackenzie delta area of the Northwest Territories. Major excavations were restricted to two sites; a nineteenth-century caribou hunting site and a twelfth-century whaling (beluga) site. The excavation of the stratified Kittegazuit site was continued and threw additional light on the culture history of the Mackenzie Eskimos.

D. W. Clark undertook two archaeological survey projects. One was a continuing reconnaissance of sites at the Batza Téna obsidian source area on the Koyukuk River of Alaska. This survey augmented the 1969 work by producing larger samples and a broader

range of materials which extend in time from the Palaeo-Indian period to the late prehistoric period. The other survey concentrated on the Anderson River and extended from Colville Lake to the Arctic Coast, District of Mackenzie, Northwest Territories. Most of the 40 sites discovered were quite small and related to several cultural complexes. The most distinctive of these complexes belongs to the Arctic Small Tool tradition.

R. E. Morlan conducted surveys on the Bell River, the Porcupine River, and the Old Crow River in northern Yukon Territory. Several sites were extensively excavated or tested and one stratified site contained sequential occupations of the historic Kutchin.

Contract-supported work in Northern Canada included the following projects, all in the Northwest Territories: G. Fedirchuk, University of Calgary, carried out further excavations, survey and paleo-environmental studies in the Fisherman Lake Valley, southwestern Mackenzie District; B. C. Gordon, University of Calgary, conducted archaeological salvage in connection with oil exploration and development activities in the Mackenzie delta area; G. Wenzel, University of Manitoba, conducted an archaeological survey and excavation in the Chesterfield Inlet region of the District of Keewatin.

**Radiocarbon Program.**—Sixty-six radiocarbon samples were received from staff and contractors and 68 were submitted to laboratories for dating. Results were received on 49 samples and descriptions of these were prepared for publication in the journal *Radiocarbon*. Pilot studies were also initiated in obsidian hydration-dating and neutron activation analysis of trace elements, the latter in co-operation with Atomic Energy of Canada Limited.

#### 1971

**Archaeological Work in Eastern Canada.**—J. V. Wright, in co-operation with the Royal Ontario Museum, excavated the mid-fourteenth-century Nodwell site at Port Elgin in Ontario. The entire 2.1-acre ancestral Huron-Petun village was excavated. A double stockade surrounded the village, which contained 11 longhouses ranging from 42 to 140 feet in length. Another house occurred immediately outside the palisade. Although the middens were destroyed by deep ploughing, more than one ton of artifactual and refuse was recovered from the more than 1,600 pits found inside the houses.

R. Marois carried out a number of survey and excavation projects in Quebec. In co-operation with the Université du Québec à Trois-Rivières, survey and excavations were conducted in the Lake Abitibi region. Other projects included investigation of an Iroquoian site on the Saint-Maurice River near Trois-Rivières and a brief survey made on Lac Dumoine with the co-operation of the Canadian Armed Forces.

Contract-supported work in Eastern Canada included the following: L. Parent, Université de Montréal, excavated a site at Oka in Quebec; J. Lavoie, Université de Montréal, surveyed along the Northumberland Strait of New Brunswick; A. Moehr, University of Toronto, undertook the administration of the Montreal River survey in northern Ontario; J. N. Emerson, University of Toronto, undertook the administration of the re-excavation of the Donaldson site near Lake Huron in Ontario; W. Dunston, University of Manitoba, excavated a site at Howell's Lake on the Albany River drainage in northern Ontario; B. Preston carried out a survey of the Shubenacadie drainage system in Nova Scotia.

**Archaeological Work in Western Canada.**—G. F. MacDonald carried out three projects along the northwest coast of British Columbia. The lower Skeena River, between the Kitselas Canyon just above Terrace and the Khyex River in the Skeena estuary, was surveyed. Major excavations continued at a large Tsimshian village in Prince Rupert Harbour. The major feature excavated was the chief's house, the largest structure in the village, measuring 45 by 45 feet. Two fortress sites on the Skeena River were also examined and a sizable mapping and excavation project was focused on the Kitselas Canyon fortress.



R. Wilmeth continued his survey and excavation program in the Anahim Lake area of British Columbia. A large circular pit house, approximately 2,000 years old, was excavated. At the close of the season, Wilmeth served as technical supervisor in the reconstruction of an early historic Chilcotin winter lodge—a joint project of the Anahim Lake Community Association, the British Columbia 1971 Centennial Commission, and the National Museum of Man.

J. V. Wright surveyed the north shore of Lake Athabasca. Major excavations took place on one site in Alberta and another site in Saskatchewan. Material along the western half of the north shore appears to relate to the Peace River Valley of Alberta whereas the eastern section of the north shore shows stronger relationships to the north and east.

Contract-supported work in Western Canada included the following: G. F. Adams, University of Saskatchewan, excavated the Estuary and Prelate Gap buffalo jump and campsite in southwest Saskatchewan; L. Allaire, Yale University, mapped and conducted test excavations at three village sites in the Kitselas Canyon of British Columbia; W. J. Byrne, University of Calgary, carried out a salvage survey at the Suffield Military Base in Alberta; J. S. Cybulski, University of California at Santa Barbara, undertook excavation of burial caves on the British Columbia coast at the request of the local band council; P. Donahue, University of Wisconsin, continued studies involving the impact of the fur trade on the Kluskuz region of British Columbia; I. G. Dyck, University of Alberta, began a study of Archaic-period settlement patterns in central Saskatchewan; C. T. Gonsalves, Manitoba Archaeological Society, conducted salvage archaeology on a number of sites in the Red River Valley of Manitoba; B. Reeves, University of Calgary, conducted a survey of the Bow River and salvage operations near Calgary in Alberta; A. H. Stryd, University of Alberta, excavated selected pit house sites near Lillooet in British Columbia; L. Symes, University of Alberta, carried out salvage archaeology in southwestern Manitoba.

**Archaeological Work in Northern Canada.**—D. W. Clark carried out two projects. The first, done in collaboration with the Alaska Methodist University in Anchorage, Alaska, concentrated on two sites at the mouth of the Afognak River in the Kodiak region of Alaska. Data relating to early maritime cultures (2000 - 4000 B.C.) on the north Pacific coast was recovered and is of pertinence to the prehistory of the West Coast of Canada. The other project concentrated on the obsidian sources on the Koyukuk River of interior northwestern Alaska. This source of a desired flaking material has served as a focus for human exploitation for the past 11,000 years.

R. E. Morlan, in response to announced plans for hydro-electric development in south-central Yukon Territory, undertook the survey of three of the four proposed reservoirs in the region. Only one of these three areas proved to be productive—the Aishihik River drainage which will require intensive salvage operations.

Contract-supported work in Northern Canada included the following projects, all in the Northwest Territories: B. Gordon, University of Calgary, continued excavations on the Upper Thelon River, in the District of Mackenzie; J. Cinq-Mars, University of Wisconsin, carried out survey and excavation in the Yellow, Tate, Stewart and Carajou lakes region in the District of Mackenzie; J. V. F. Millar, University of Saskatchewan, conducted archaeological survey of the Liard River, southwestern Mackenzie District; P. Schlederman, University of Calgary, conducted survey and excavation in Cumberland Sound, Baffin Island, District of Franklin; G. Wenzel, University of Manitoba, carried out excavations at Chesterfield Inlet, District of Keewatin.

**Radiocarbon Program.**—Toward the end of 1971, 50 radiocarbon samples received from staff and contractors had been processed and catalogued; 23 samples were submitted to laboratories for dating. The results were received on 39 samples including samples submitted earlier. Forty-nine obsidian samples from both source localities and archaeological sites in British Columbia were subjected to neutron activation analysis and provided knowledge on the trade of obsidian between coastal and interior British Columbia.

## Section 5.—Climate and Time Zones\*

### Subsection 1.—Climate

Just as there are great differences in the weather throughout Canada at any given instant, there are also many climates. These climates are similar to those in Europe and Asia extending from the Arctic down to the mid-northern hemispheric latitudes. Because Canada is situated in the northern half of the hemisphere, most of the country loses more heat annually than it receives from the sun. The general atmospheric circulation compensates for this and at the same time produces a general movement of air from west to east. Migrant low pressure areas move across the country in this "westerly zone", producing storms and bad weather. In intervals between storms there prevails the fair weather associated with high pressure areas.

Although the movement of migrant high and low pressure systems within the zone of the westerlies is the most significant climatic control over Canada, the physical geography of North America contributes greatly to the climate. On the West Coast, the western Cordillera limits mild air from the Pacific to a narrow band along the coast, while the prairies to the east of the mountains are dry and have extreme temperatures because they are shielded from the Pacific Ocean and are in the interior of a large land mass. In addition, the prairies are part of a wide north-south corridor open to rapid air flow from either north or south which often brings sudden and drastic weather changes to this interior area. On the other hand, the large water surfaces of Eastern Canada produce a considerable modification to the climate. In southwestern Ontario winters are milder with more snow, and in summer the cooling effect of the lakes is well illustrated by the number of resorts along their shores. On the East Coast, the Atlantic Ocean has considerable effect on the immediate coastal area where temperatures are modified and conditions made more humid when the winds blow inland from the ocean.

The following table gives temperature and precipitation data for typical stations in the various regions of Canada. Temperatures in this table refer to observations taken in a thermometer shelter which has been placed in a representative location with the thermometer bulbs four feet above the surface of the ground. Mean January and July temperature data are based on records over the 30-year period from 1931 to 1960 except for far northern stations where the available period of record is shorter. After an average temperature is obtained for each day in January over a 30-year period, the mean January temperature may be arrived at by striking a mean of these 930 daily values. The mean July temperature may be obtained in a similar manner. The highest and lowest temperatures on record refer to the absolute extremes for the entire period of record at each station. Average dates are shown for the last occurrence in spring of a temperature of 32°F or lower and for the first occurrence in autumn of freezing temperatures at the four-foot level in the thermometer shelter.

The official Canadian rain gauge is a small cylinder in which the rain is caught and then measured to one hundredth of an inch with a simple measuring device. Freshly fallen snow is measured as it lies on the ground and recorded to the tenth of an inch. Total precipitation values as shown in Table 8 are the sum of the total rainfall and one tenth of the total snowfall. For the purposes of this table, a day with precipitation is one on which at least one hundredth of an inch of rain or one tenth of an inch of snow has fallen.

\* Subsections 1 and 2 of this Section were prepared by the Atmospheric Environment Service, Toronto. A comprehensive study on The Climate of Canada, prepared by the (then) Canadian Meteorological Service, was carried in the 1959 Year Book, pp. 23-51. Supplementing that textual material, detailed tabulations of climatic factors for 45 individual meteorological stations across the country were carried in the 1960 Year Book, pp. 33-77. A reprint is available from the above source giving the complete textual and tabular data. A special article on The Climate of the Canadian Arctic appears in the 1967 Year Book at pp. 55-74, an augmented reprint of which is also available from the Atmospheric Environment Service.

## 8.—Temperature and Precipitation Data for Typical Stations in the Various Districts

District and Station	TEMPERATURES (Fahrenheit)						PRECIPITATION		
	Mean Jan.	Mean July	Highest on Record	Lowest on Record	Av. Dates of Freezing Temperatures (32°F or Lower)		Total (All Forms) <sup>1</sup>	Snowfall	Av. Number of Days (All Forms)
					Last in Spring	First in Autumn			
							in.	in.	
<b>Newfoundland—</b>									
Island of Newfoundland—									
Belle Isle.....	13.5	49.1	73	-31	June 21	Sept. 26	33.56	92.0	143
Gander.....	20.8	62.3	96	-17	June 2	Oct. 5	40.35	127.1	201
St. Andrew's.....	24.6	59.3	81	-11	June 4	Sept. 28	42.66	64.6	171
St. John's.....	24.3	59.7	93	-21	June 6	Oct. 9	60.98	149.7	207
<b>Labrador—</b>									
Cartwright.....	7.5	55.7	97	-36	June 23	Sept. 7	38.15	183.1	179
Goose.....	2.2	61.4	100	-38	June 5	Sept. 16	32.93	167.6	173
<b>Maritime Provinces—</b>									
Prince Edward Island—									
Charlottetown.....	19.6	65.6	98	-23	May 12	Oct. 17	43.49	105.0	166
<b>Nova Scotia—</b>									
Annapolis Royal.....	25.5	65.3	91	-17	May 12	Oct. 10	45.61	75.8	154
Halifax.....	26.0	65.3	99	-21	May 1	Oct. 28	54.39	70.9	156
Sydney.....	24.3	61.9	98	-25	May 24	Oct. 15	51.37	95.5	176
Yarmouth.....	27.7	61.9	86	-12	May 2	Oct. 24	50.00	81.7	153
<b>New Brunswick—</b>									
Chatham.....	14.8	66.7	102	-43	May 22	Sept. 26	39.18	99.6	154
Grand Falls.....	10.6	65.0	98	-46	May 26	Sept. 22	40.50	108.1	104
Moncton.....	17.8	65.6	99	-30	May 24	Sept. 23	40.96	108.6	155
Saint John.....	19.5	63.0	94	-34	May 16	Sept. 30	53.57	97.7	156
<b>Quebec—</b>									
<b>Northern—</b>									
Fort Chimo.....	-11.0	53.3	90	-52	June 24	Aug. 27	16.47	69.5	146
Inouéjouac (Port Harrison).....	-13.0	48.0	86	-57	July 1	Aug. 30	15.51	64.5	134
Nitehequon.....	-9.1	56.7	90	-67	June 11	Sept. 12	29.64	108.4	194
Schefferville.....	-9.4	55.1	88	-59	June 19	Aug. 31	29.40	134.5	185
<b>Southern—</b>									
Bagotville.....	3.5	64.2	96	-46	May 27	Sept. 19	37.67	127.0	175
Montreal.....	16.3	70.8	97	-31	Apr. 25	Oct. 21	41.19	98.6	167
Pointe au Père.....	12.5	59.3	90	-33	May 16	Sept. 30	32.73	110.7	154
Quebec.....	11.3	66.7	97	-34	May 7	Oct. 11	41.67	110.8	158
Sept Îles.....	7.1	59.6	90	-46	May 31	Sept. 15	42.39	164.3	142
Sherbrooke.....	15.2	68.2	98	-42	May 13	Sept. 26	39.15	95.0	174
<b>Ontario—</b>									
<b>Northern—</b>									
Kapuskasing.....	-0.1	63.2	101	-53	June 10	Sept. 5	33.78	123.1	184
Sioux Lookout.....	-0.4	65.7	103	-51	May 28	Sept. 19	27.59	85.5	167
Thunder Bay.....	7.2	63.5	104	-42	June 1	Sept. 8	29.40	84.6	144
Trout Lake.....	-11.0	60.7	96	-54	June 10	Sept. 16	23.89	78.0	157
<b>Southern—</b>									
London.....	22.9	69.6	106	-27	May 15	Oct. 6	37.19	72.5	164
Ottawa.....	12.6	69.2	102	-38	May 13	Sept. 28	33.55	86.1	152
Parry Sound.....	16.3	67.5	100	-42	May 11	Oct. 4	39.12	111.7	159
Toronto.....	25.0	71.5	105	-27	May 9	Oct. 4	30.56	54.9	137
Windsor.....	25.5	71.8	101	-15	Apr. 30	Oct. 18	32.61	38.0	137
<b>Prairie Provinces—</b>									
<b>Manitoba—</b>									
Churchill.....	-17.5	53.6	96	-57	June 25	Sept. 12	15.99	69.1	143
The Pas.....	-7.0	64.8	100	-57	May 30	Sept. 20	17.76	54.7	127
Winnipeg.....	0.1	68.3	108	-54	May 26	Sept. 19	20.35	51.3	125
<b>Saskatchewan—</b>									
Regina.....	1.6	66.7	111	-58	May 29	Sept. 14	15.53	43.0	115
Saskatoon.....	1.0	66.6	104	-58	May 27	Sept. 7	13.86	42.6	105
Swift Current.....	8.9	66.9	107	-54	May 30	Sept. 22	15.27	44.4	114
<b>Alberta—</b>									
Beaverlodge.....	7.4	60.2	98	-54	May 23	Sept. 8	17.91	68.1	127
Calgary.....	14.2	62.0	97	-49	May 27	Sept. 11	17.44	58.5	116
Edmonton.....	6.6	63.1	99	-57	May 27	Sept. 19	18.64	53.8	121
Medicine Hat.....	12.1	69.1	108	-51	May 14	Sept. 20	14.29	48.7	93

<sup>1</sup> Total rainfall and one tenth of the total snowfall.



### 8.—Temperature and Precipitation Data for Typical Stations in the Various Districts —concluded

District and Station	TEMPERATURES (Fahrenheit)						PRECIPITATION		
	Mean Jan.	Mean July	Highest on Record	Lowest on Record	Av. Dates of Freezing Temperatures (32°F or Lower)		Total (All Forms) <sup>1</sup>	Snowfall	Av. Number of Days (All Forms)
					Last in Spring	First in Autumn			
							in.	in.	
<b>British Columbia—</b>									
Pacific Coast and Coastal Valleys—									
Estevan Point.....	40.4	56.6	84	7	Apr. 3	Nov. 15	115.39	10.7	201
Langara.....	37.1	54.4	78	6	Apr. 1	Nov. 28	68.39	24.3	252
Prince Rupert.....	35.2	56.2	90	-12	Apr. 20	Nov. 6	94.41	32.7	230
Vancouver.....	37.2	63.8	95	0	Apr. 2	Oct. 28	41.12	17.8	159
Victoria.....	39.4	60.1	97	4	Feb. 28	Dec. 8	27.41	11.5	143
Southern Interior—									
Glacier.....	13.5	57.9	98	-32	June 10	Sept. 8	57.10	370.2	192
Kamloops.....	21.4	69.6	103	-38	May 4	Sept. 26	9.71	32.5	87
Penticton.....	27.4	68.4	105	-16	May 10	Sept. 29	12.08	25.5	101
Princeton.....	17.9	63.4	107	-49	June 4	Sept. 13	14.17	58.5	117
Central Interior—									
Barkerville.....	15.4	54.4	96	-52	June 29	Aug. 16	45.25	226.1	185
McBride.....	16.0	60.5	100	-50	June 14	Aug. 26	21.31	84.3	127
Prince George.....	11.6	58.9	102	-58	June 13	Aug. 24	24.67	79.6	162
Smithers.....	14.9	57.5	99	-48	June 23	Aug. 19	20.27	73.3	157
Northern Interior—									
Atlin.....	8.6	53.5	87	-58	June 7	Sept. 2	10.95	43.4	87
Dense Lake.....	-2.3	55.1	93	-60	July 1	Aug. 16	15.25	65.8	143
Fort Nelson.....	-8.4	62.2	98	-61	May 25	Sept. 3	17.13	67.7	125
Fort St. John.....	4.2	61.1	92	-65	May 19	Sept. 8	17.42	76.0	131
Smith River.....	-11.4	57.3	92	-74	June 24	Aug. 11	18.28	79.9	147
<b>Yukon Territory—</b>									
Dawson.....	-17.6	59.8	95	-73	June 1	Aug. 23	12.67	49.9	115
Snag.....	-18.5	57.0	89	-81	June 15	Aug. 8	14.07	53.2	114
Watson Lake.....	-11.5	59.1	93	-74	May 29	Sept. 2	16.98	82.5	149
Whitehorse.....	-0.6	57.5	91	-69	June 3	Aug. 30	10.05	45.6	116
<b>Northwest Territories—</b>									
Mackenzie Basin—									
Fort Good Hope.....	-22.0	60.5	95	-79	June 11	Aug. 8	10.52	46.3	97
Fort Simpson.....	-15.8	62.0	97	-69	June 2	Aug. 31	12.92	47.9	118
Hay River.....	-12.2	59.8	96	-62	June 8	Sept. 11	12.59	53.3	99
Barrens—									
Baker Lake.....	-27.2	51.3	82	-58	June 27	Aug. 28	8.21	22.9	95
Chesterfield.....	-24.8	47.9	86	-60	June 28	Sept. 7	10.96	46.5	98
Coppermine.....	-19.4	48.7	90	-58	June 26	Aug. 20	9.22	44.3	114
Arctic Archipelago—									
Clyde.....	-16.6	40.6	71	-50	July 13	July 18	8.07	57.5	87
Eureka.....	-34.0	42.4	67	-64	June 25	Aug. 5	2.40	14.0	48
Frobisher Bay.....	-15.7	46.2	76	-50	June 26	Aug. 30	14.99	80.5	129
Mould Bay.....	-28.4	38.8	60	-65	July 12	July 18	3.17	18.7	74
Resolute.....	-26.3	40.3	65	-62	July 11	July 20	5.36	28.8	95

<sup>1</sup> Total rainfall and one tenth of the total snowfall.

### Subsection 2.—Atmospheric Environment Service

The Atmospheric Environment Service is a main component of the newly formed federal Department of the Environment. Its functions include those that have been carried out for many years by the Canadian Meteorological Service which, in effect, has been transferred under a new title from the Ministry of Transport to the new Department. The Service intends to involve itself further in research into atmospheric processes affecting the environment and in the practical application of this knowledge. The services, which are provided to meet civil requirements throughout Canada, are largely organized on a regional basis with offices located at Vancouver, Edmonton, Winnipeg, Toronto, Montreal

and Moncton. Each region operates several categories of offices with assigned levels of responsibility for the provision of weather services. Main weather offices are located at major centres across Canada. Each serves an area about the size of a large province, providing weather services to the general public and additional specialized services to groups and agencies concerned with aviation, water resources, forestry, agriculture, road and rail transportation, construction and marine activities. Headquarters of the Service is located in a new building at 4905 Dufferin St., Toronto.

Because weather services are designed to meet the special needs of each group, they are as varied as the functions of the consumers. In general, they fall into about three categories. First, current data representing the latest observations of the local weather taken at official observing sites across the country are made available and meet many of the needs of both the public and the economy. Hourly readings of temperature, humidity, cloud cover, precipitation and wind speed and direction are of interest to some, are of concern to others and, at times, are vital to such activities as aviation, flood forecasting, shipping, snow removal and recreation. Daily values of temperature extremes and precipitation amounts are likewise of use to others.

Secondly, short-range and medium-range forecasts are provided for certain areas and for specific locations, such as aerodromes, canals, fruit and vegetable growing areas and large urban centres. The forecasts for the general public are issued by the main weather offices and are distributed across Canada by relay to the radio and TV stations and to the press, and by commercial communication channels.

A third service has to do with technical applications using historical and statistical weather data. All observed weather data are processed and stored to provide a historical record of the Canadian climate. These data are analysed, quality-controlled and published in a variety of forms and may be applied to the special problems of agriculture, forestry, water resources, and to other areas of Canadian activity. Advisory services are available at most weather offices so that each inquirer may receive the information needed in the form best suited to his needs; services of meteorological specialists are available at Toronto Headquarters and at some weather offices. Special analytical projects are undertaken requiring computer analysis of archived data to provide advice to industry, science and government. Although forecasts are issued only at the main weather offices, secondary weather offices staffed by trained presentation technicians are supplied with sufficient information via the meteorological communication network to enable them to meet a wide range of localized inquiry. Requests for services at a number of secondary offices are such that a professional meteorologist is on staff to provide consultation-type service.

There are now 11 main weather offices and 43 secondary weather offices in the weather service system. In addition, local meteorological services are available from Canadian Forces Weather Offices at Department of National Defence bases across the country.

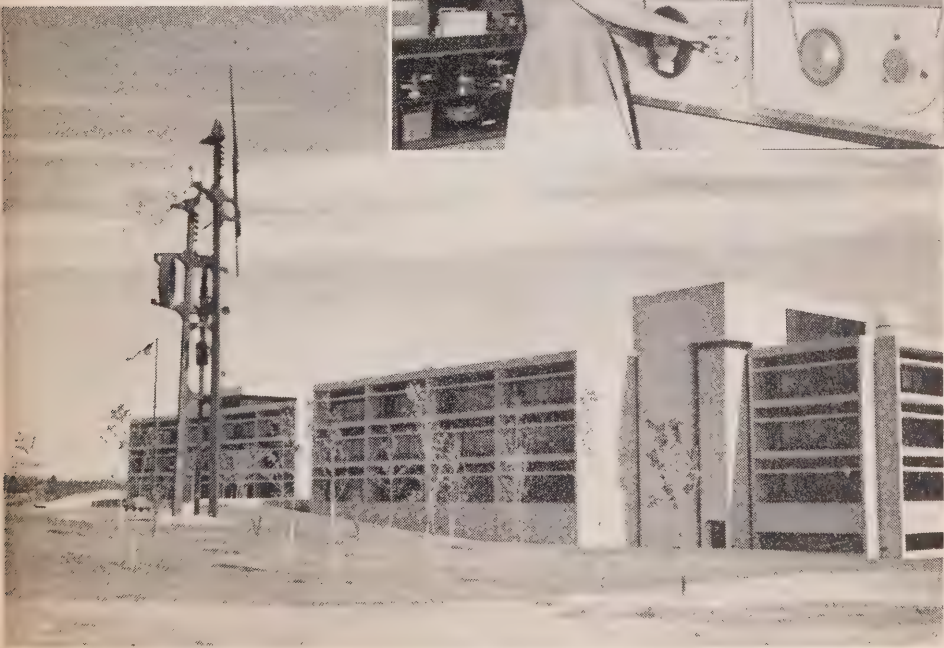
A developing trend in the organization of meteorological services is the establishment of a Scientific Support Services group within Regional Meteorological Offices, which is capable of examining in detail meteorological influences on the activities of major sectors of the economy and of developing specialized services that might be required, taking into account the geographical and topographical features of the area concerned. For example, in British Columbia, mutually beneficial co-ordination and co-operation have resulted in arrangements between provincial authorities and the Regional Office in Vancouver for programs of considerable provincial importance, including the establishment of rain and snow gauge networks for hydrology studies, support for the Columbia River control system, provision of forest fire danger and slash-burning forecasts, and the provision of a frost-warning service for the fruit growing areas of the interior.

**Weather Observing Stations.**—Several networks of weather observing stations provide the information that forms the basis for the forecasts and advisory service and for the climatological and technical services referred to above. In June 1971, official meteorological observations were taken and recorded at 2,460 weather reporting stations

in Canada. There are several classes of stations, ranging from 280 first order reporting stations, mainly at aerodromes, where hourly observations of all aspects of the weather are recorded, to the 2,000 co-operative observing stations where volunteer observers make daily observations of rainfall, snowfall and temperature. Although there are vast areas of the country where the weather observing stations are several hundred miles apart, the weather in the settled parts of the country is recorded hourly at first order reporting stations every 100 miles or so and daily at co-operative climatological stations about 25 miles apart.

Some first order weather stations do not report hourly but make complete weather observations every six hours. All hourly and six-hourly reports prepared in a special number code are relayed almost instantaneously by the meteorological communications network to all weather offices across the country and are dispatched at high speed to other countries requiring Canadian observations. At the end of the month, all weather observing stations send their official observation report forms to a regional collection office, from which they are sent to Headquarters for final quality control, processing and publication. These data become part of the climatological archives and serve as a permanent record of Canadian weather. The observing personnel at most of these stations are either employees of the Service or are Canadian Forces personnel, and the remainder are employed by the Ministry of Transport or are individuals working under contract or through a co-operative arrangement by which various transportation and communication companies take observations in return for special services.

The new Atmospheric Environment Service Building in Toronto. Here, using highly sophisticated computer capabilities and the large banks of data collected through a vast weather observing network, the meteorologist is able to provide the climatic information demanded by a weather-sensitive population.





Twice daily, at 36 locations throughout the country, upper air observations are made from ground level to altitudes up to 100,000 feet. Pressure, temperature and humidity measurements are made automatically by radiosonde instruments carried aloft by balloons and this information is relayed by a system of radio signals to ground receiving stations. The wind directions and speeds aloft are determined by measuring the drift of the balloon and attached radiosonde instruments using radar or radio direction equipment. The upper air observations, like those of the surface weather, are distributed rapidly to weather offices, and at the end of the month summary report forms are sent to Headquarters where the data are quality-controlled, processed, published and archived.

There are more than 2,000 climatological observing stations in Canada where observers record the precipitation and temperature extremes and send their climatological reports on monthly data sheets to Regional Data Collection Centres and then to Headquarters. Most of the observers serve on a voluntary basis and willingly spend several hours a month on this useful hobby. In addition, many governmental and industrial organizations have incorporated brief climatological duties into the general work program of selected employees. The number of weather observing stations has been growing at an average rate of more than 100 a year for the past decade, and thus a steadily increasing historical record of Canadian weather is available to assist Canadians in all economic pursuits. These data are frequently used in investigations of agricultural potential and irrigation, hydro-electric, industrial and other problems of a wide variety.

**Meteorological Communications.**—The meteorological communications system is the lifeline that provides the flow of information essential to a reliable weather information service. Since weather conditions are constantly changing, the value of reports of weather observations falls off rapidly and the time between the taking of the observation and its relay to the public or use in a forecast must be kept as short as possible. For a country the size of Canada with many sparsely settled areas, rapid communication presents difficult problems and requires unique solutions.

Weather offices and weather stations are linked coast-to-coast by land-line teletype and, in remote northern areas, by radio or radio teletype. The land-line teletype circuits are leased from commercial wire companies and operated by the Atmospheric Environment Service; most of the radio circuits are operated by the Telecommunications and Electronics Branch of the Ministry of Transport. Relay of all weather data is controlled by a centrally located computer in Toronto.

In addition to the foregoing, two long-line weather facsimile networks transmit information in the form of weather charts, from central forecast offices to weather offices from coast to coast and into the northern and ocean areas by radio facsimile. Icebreakers and other ships equipped with receivers thus have the latest weather charts regularly available for guidance in their operations.

The Atmospheric Environment Service operates 37,000 airline miles of teletype circuit serving 378 stations with 569 facility connections, and the meteorological facsimile system serves 100 stations equipped with 132 connections and uses 19,225 miles of network circuits.

**Specialized Services.**—Although weather services are organized on a regional basis, certain specialized services can be most economically provided from a central location. Such a service is the ice reconnaissance and forecasting program to support marine activity in ice-congested waters: the program is directed from Toronto and the Ice Forecast Centre is located in Halifax. Specially equipped aircraft are used in the aerial phase of the program and ice charts can be passed from the aircraft directly to icebreakers via radio facsimile. Other phases of the program are the provision of valuable supplemental data from ship-board ice observers assigned to eight Canadian Coast Guard icebreakers, and the operation of 120 ice reporting shore stations and 60 weekly reporting stations where ice thickness is measured. Forecast ice charts are also dispatched via facsimile circuits and mailed to a wide variety of personnel and organizations having need of this information.

Providing another specialized service, the Climatology Division at the Atmospheric Environment Service Headquarters in Toronto, using the unique capabilities of a computer and large banks of weather data which have been quality-controlled and stored so that they are available for rapid access by computer, is able to provide statistical material of a highly sophisticated nature. These computer-produced climatological data allow the full range of relevant historic weather information to be applied to an increasingly wide variety of problems in which human, economic and physical activities and their weather-sensitive factors are being examined. In addition, hydrometeorological specialists are responsible for meteorological studies in support of water resources activities involving the rivers, reservoirs and lakes of Canada. Such studies include the provision of criteria for the proper design and operation of water-control structures, techniques for use in lake level, river flow and flood forecasting, and assistance in water supply and pollution investigations.

The scientific and technical orientation of modern life have evolved, in part, because people are unwilling to accept the apparent vagaries of weather—the unexpected occurrence of frost, flood, blizzard and storms at sea—without applying scientific and technical knowledge toward an understanding of the weather as a major environmental influence. People wish to be forewarned so that precautions can be taken and hardships mitigated. They are able to establish and successfully operate warning and protective procedures employing emergency systems and backup facilities, and to direct or adjust operations to save life and protect property from high wind, extreme cold, frost, flood and storm.

**Research and Development.**—The extent to which modern meteorological science can aid in providing better services has been only partially explored. At the Service Headquarters in Toronto, research and development work is a continuing activity with changing priorities as a constant search is made for better forecasting techniques and for improvements in the day-to-day meteorological services. Current research in this field is discussed in some detail in Chapter VIII on Scientific and Industrial Research.

**World Meteorology.**—Canada has always co-operated with other nations in the exchange of weather data and other important matters relating to international meteorology. A major area of international co-operation is with the United States Weather Bureau which is now a part of Environmental Science Services Administration (ESSA). The two national meteorological organizations exchange data freely. Co-operative arrangements are also made for the use by Canada of data processed by the large ESSA computer facilities in Washington. Other agreements cover the marine forecasting program on the Great Lakes relating to standardization of methods of ship observations, criteria for issuing weather warnings and other similar matters.

The air that circles the earth is an international resource. Research studies of the atmosphere and the prediction of weather elements require global surface and upper air observation networks, the international exchange of data via modern high-speed communications links, and the broadscale processing of data by computers.

World meteorology is highly organized on a global basis through the World Meteorological Organization (WMO) with headquarters in Geneva and a participating membership of 132 states and territories. Canada is an active member of this world organization and fully supports its many goals. A major portion of the WMO technical program is now devoted to the World Weather Watch (WWW)—a worldwide plan for upgrading and modernizing meteorological observing networks and national weather services.

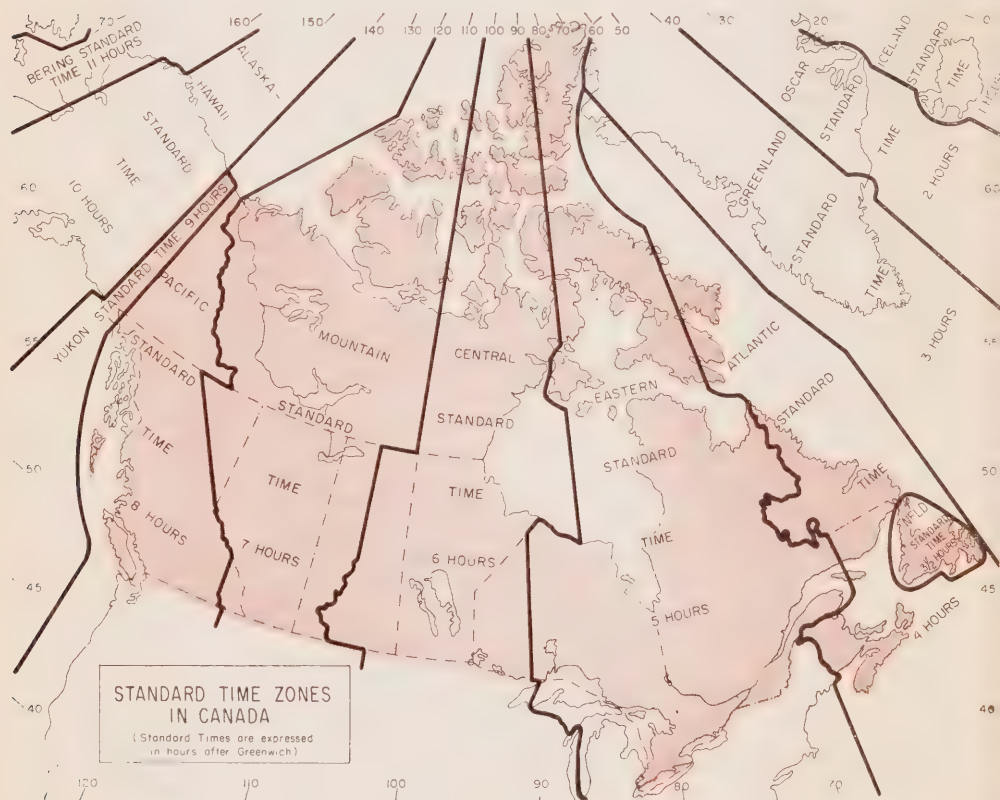
The unprecedented opportunities afforded by the development of earth-orbiting meteorological satellites and the availability of high-speed electronic computers are being examined in depth and both developed and developing countries are co-operating fully so that all member states of the WMO will derive full benefits from modern technology and, in turn, will have improved meteorological services.

### Subsection 3.—Standard Time and Time Zones

The rotation of the earth on its axis was considered at one time to be entirely uniform and the unit of time, which is the second, was defined as  $1/86400$  of the mean solar day. Improvements in clocks and in the methods of making astronomical observations demonstrated conclusively that there are irregularities in earth rotation too large to be neglected. So, in 1957 the International Committee on Weights and Measures defined the second in terms of the annual motion of the earth about the sun, called ephemeris time. Also in 1957 the first caesium atomic clock was calibrated with respect to ephemeris time, but not until 1968 was the caesium second adopted as the international standard. The second today is defined as 9,192,631,770 cycles of a transition of the caesium atom.

Atomic timekeepers, with a precision of a millionth of a second a day, control Canada's time service. The same is true of CHU (3330 kHz, 7335 kHz, 14670 kHz), the continuous broadcast of Canadian time which contains a bilingual voice announcement of time each minute.

Standard Time, which was adopted at a World Conference held at Washington, D.C., in 1884, sets the number of time zones in the world at 24, each zone ideally extending over one twenty-fourth of the surface of the earth and including all the territory between two meridians  $15^\circ$  of longitude apart. In practice, the zone boundaries are quite irregular for geographic and political reasons. Universal Time (UT) is the time of the zone centred





on the zero meridian through Greenwich. Each of the other time zones is a definite number of hours ahead of or behind UT to a total of 12 hours, at which limit the international date line runs roughly north-south through the mid-Pacific.

Canada has seven time zones, the most easterly being Newfoundland Standard Time, three hours and thirty minutes behind UT and the most westerly Yukon (west) Standard Time, nine hours behind UT. In between, from east to west, the remaining zones are called Atlantic, Eastern, Central, Mountain, Pacific and Yukon (east). Yukon (east) and Pacific Standard in effect constitute a single zone.

**Legal Authority for the Time Zones.**—Time in Canada has been considered a matter of provincial rather than federal jurisdiction. Each of the provinces and the North-west Territories has enacted laws governing the standard time to be used within its boundaries. These laws determine the location of the time zone boundaries. Lines of communication, however, have sometimes caused communities near the boundary of a time zone to adopt the time of the adjacent zone, and in most cases these changes are acknowledged by amendments to provincial legislation. During the two World Wars, there were federal enactments concerning time but these were of temporary duration. In 1941 the Dominion Observatory time was declared the time to be used for official purposes in Canada.

**Daylight Saving Time**—Although Daylight Saving Time had been urged in many quarters before World War I, its first use in Canada came as a federal war measure in 1918. Today most of the provinces have legislation controlling the provincial or municipal adoption (or rejection) of Daylight Saving Time; in the other provinces the authority is left to the municipalities. By general agreement, Daylight Saving, where it is observed, is in force for six months from the last Sunday in April to the last Sunday in October.

## Section 6.—Public Lands

### Subsection 1.—Federal and Provincial Public Lands

The total area of Canada and the areas of the individual provinces and territories are classified by tenure in Table 9. All lands, with the exception of those privately owned or in process of alienation, are Crown lands under the jurisdiction of either the federal or the provincial governments. In the table, items 2, 3, 4 and 5 are obtained from Federal Government sources and items 1, 6, 7 and 8 from provincial government sources.

**9.—Total Area classified by Tenure (circa) 1971**

Item	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.
	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles
1. Privately owned land or land in process of alienation from the Crown.....	6,830	2,051	15,670	15,347	43,500	45,156
2. Federal Crown lands other than national parks, Indian reserves and settlements and forest experiment stations <sup>1</sup> .....	174	5	60	354	461 <sup>2</sup>	426
3. National parks.....	803	7	514	170	257	737
4. Indian reserves and settlements.....	—	3	42	59	283	2,478
5. Federal forest experiment stations.....	—	—	—	35	7	40
6. Provincial or territorial lands other than provincial parks and provincial forests.....	148,154	105	5,116	11,228	468,874	357,851
7. Provincial parks.....	107	4	23	83	75,000	5,894
8. Provincial forests.....	117	9	—	1,078	6,478	—
<b>Totals.....</b>	<b>156,185</b>	<b>2,184</b>	<b>21,425</b>	<b>28,354</b>	<b>594,860</b>	<b>412,582</b>

For footnotes, see end of table, p. 56.

## 9.—Total Area classified by Tenure (circa) 1971—concluded

Item	Man.	Sask.	Alta.	B.C.	Y.T. and N.W.T.	Canada
	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles
1. Privately owned land or land in process of alienation from the Crown.....	55,874 <sup>3</sup>	106,137	99,841	20,777	93	411,276
2. Federal Crown lands other than national parks, Indian reserves and settlements and forest experiment stations <sup>1</sup> .....	221	130	437	300	1,507,559 <sup>4</sup>	1,510,127
3. National parks.....	1,148	1,496	20,692 <sup>5</sup>	1,821	3,650 <sup>6</sup>	31,295
4. Indian reserves and settlements.....	827	2,170	2,534	1,340	—	9,736
5. Federal forest experiment stations.....	26	—	23	—	12	143
6. Provincial or territorial lands other than provincial parks and provincial forests.....	184,299	19,922	120,134	234,372	665 <sup>7</sup>	1,550,720
7. Provincial parks.....	3,190	1,821	2,357	10,134	—	98,613
8. Provincial forests.....	5,415	120,024	9,267	97,511	—	239,899
<b>Totals.....</b>	<b>251,000</b>	<b>251,700</b>	<b>255,285</b>	<b>366,255</b>	<b>1,511,979</b>	<b>3,851,809</b>

<sup>1</sup> Includes leased land, which is, however, a minor portion of the total.

<sup>2</sup> Includes Gatineau Park (137.5

sq. miles) and Quebec Battlefields Park (0.36 sq. mile) which are under federal jurisdiction but are not technically national parks.

<sup>3</sup> Includes 2,656 sq. miles of Crown land under lease.

<sup>4</sup> Includes 952,849 sq. miles

set aside by Order in Council as native game preserves in which only Indians and Eskimos may hunt, but which are not regarded as national parks.

<sup>5</sup> Includes that part of Wood Buffalo Park in Alberta (13,650 sq. miles).

<sup>6</sup> That part of Wood Buffalo Park in N.W.T. <sup>7</sup> Federal Crown lands transferred to the administration of the Yukon and Northwest Territories encompassing established communities.

**Federal Public Lands.**—Public lands under the administration of the Federal Government comprise lands in the Northwest Territories including the Arctic Archipelago and the islands in Hudson Strait, Hudson Bay and James Bay, lands in Yukon Territory, ordnance and admiralty lands, national parks and national historic parks and sites, forest experiment stations, experimental farms, Indian reserves and, in general, all public lands held by the several departments of the Federal Government for various purposes connected with federal administration (see Table 9). These lands are administered under the Territorial Lands Act (RSC 1970, c. T-6) and the Public Lands Grants Act (RSC 1970, c. P-29).

The largest areas under federal jurisdiction are in the Northwest Territories and the Yukon Territory where only 93 sq. miles of a total area of 1,511,979 sq. miles are privately owned and 665 sq. miles are under the administration of the Territorial Governments. (See paragraph two of the item below.)

**Provincial and Territorial Public Lands.**—Public lands of Nova Scotia, New Brunswick, Quebec, Ontario and British Columbia (except the Railway Belt and Peace River Block) have been administered since Confederation by the provincial governments. In 1930, the Federal Government transferred the unalienated portions of the natural resources of Manitoba, Saskatchewan and Alberta and of sections of British Columbia to the respective governments, and all unalienated lands in the Province of Newfoundland, except those administered by the Federal Government, became provincial public lands under the Terms of Union on Mar. 31, 1949. All land in the Province of Prince Edward Island has been alienated except 133 sq. miles under federal or provincial administration.

The transfer by the Federal Government of significant areas of land within and immediately surrounding established communities in the Northwest Territories and the Yukon Territory to the administration of the respective Territorial Governments began in September 1970. In that year, four such transfers were completed, three in the Northwest Territories and one in the Yukon: land encompassing the city of Yellowknife (about 220 sq. miles), the town of Inuvik (about 95 sq. miles) and the communities of Rae-Frank

Channel-Calzo (about 110 sq. miles) in the Northwest Territories, and the city of Whitehorse (about 240 sq. miles) in the Yukon Territory, a total of about 665 sq. miles. Similar transfers will be completed during the next four years.

Information regarding provincial public lands may be obtained from the respective governments. (See the Directory of Sources of Official Information, Chapter XXVI, under "Lands and Land Settlement".)

### Subsection 2.—National Parks

Canada's national parks are the result of the Federal Government's efforts to preserve natural areas of outstanding scenic and biological interest for the benefit of the public. The national park concept, which began with the establishment of Yellowstone National Park in the United States in 1872, was soon afterwards applied in Canada. In 1885, the Canadian Government reserved from private ownership the hot mineral springs of Sulphur Mountain in what is now Banff National Park. Two years later, this 10-sq.-mile reserve was extended to 200 sq. miles and named Rocky Mountains Park, the first federal park in Canada. In the same year, Queen Victoria Niagara Falls Park, the first provincial park, was established by the Ontario Government to protect the public's right to view the great natural wonder of Niagara Falls. Two land reserves in southern British Columbia—Yoho and Glacier—were made by the Federal Government in 1886, a reserve of 54 sq. miles in the Waterton Lakes area of southern Alberta in 1895, and an area of 5,000 sq. miles around Jasper, Alberta, in 1907. These four reserves, all in the western mountain ranges, together with Rocky Mountains Park, formed the nucleus of the national park system after the Dominion Forest Reserves and Parks Act was passed by Parliament in May 1911. Concurrently, a distinct National Parks Branch was created in the Federal Government to protect, administer and develop the parks.

By 1930, nine more national parks had been established. Three of these were in Ontario and consisted of federally owned Crown land or land held in trust for Indians. One in Saskatchewan and one in Manitoba were former federal forest reserves. Wood Buffalo National Park, a 17,300-sq.-mile area straddling the Alberta-Northwest Territories border, was established as a refuge for the largest surviving herd of wood buffalo in North America. Elk Island National Park near Edmonton was also established as a preserve for buffalo, and Mount Revelstoke and Kootenay National Parks, scenic areas in southern British Columbia, were established by agreement between the Federal and British Columbia Governments.

The parks added to the system since 1930 were set up with the co-operation of provincial governments which made lands available for national park purposes. All public lands suitable for national parks are now under the administration of provincial and territorial governments and a new national park usually is established by Act of Parliament after the land for it has been acquired by the provincial government and transferred, together with all its natural resources, to the Federal Government.

National parks are now under the jurisdiction of the Minister of Indian Affairs and Northern Development and are administered by the National and Historic Parks Branch under the National Parks Act, 1930 (RSC 1970, c. N-13) and various park regulations. The purpose of the parks and the objectives of their management are set out in the Act, which dedicates the parks to the people of Canada for their "benefit, education and enjoyment" and states that they are to be maintained and used so as to leave them unimpaired for the enjoyment of future generations.

An important step in the evolution of national park administration was taken when all policies concerning the parks were reviewed, amended and consolidated in a statement that was approved by the Federal Government and announced in the House of Commons



on Sept. 18, 1964. Following are the main points of this policy statement, which will guide administration and provide objectives for planning and development.

- (1) National parks are established to preserve for all time the most outstanding and unique natural features of Canada for the benefit, education and enjoyment of Canadians as part of their natural heritage. They are dedicated forever to one use—to serve as sanctuaries of nature for rest, relaxation and enjoyment. No exploitation of resources for any other purpose is permitted. All development must contribute to public enjoyment and conservation of the parks in a natural condition.
- (2) Zoning will be used to guide development and to preserve park values. Visitor services will be grouped generally into visitor service centres, a definition that applies to existing town sites.
- (3) National parks cannot meet every recreational need; the most appropriate uses are those involving enjoyment of nature and activities and experiences related to the natural scene.
- (4) The Federal Government assumes the cost of administration and protection in the parks and provides basic facilities for public use, such as roads, trails, campgrounds, picnic areas, nature interpretation and utilities. Other facilities beyond basic requirements, such as hotels, motels, restaurants, gas stations, stores and other special services, are provided by private enterprise.
- (5) Park residents and businesses should be in the same economic position as those operating outside the national parks and this principle governs the approach to charges, rentals and fees. The users of special services such as swimming pools, marinas, golf courses and fully serviced campgrounds should pay the operation and maintenance costs of these publicly operated facilities. In general, permanent and seasonal residents should be limited to persons providing basic services to the park community.
- (6) All decisions affecting public development and the activities of private enterprise must be governed by the national interest as expressed by the National Parks Act.

In addition to the national parks, which preserve natural features, national historic parks and sites commemorate events of national importance and preserve historic landmarks or objects of historic, prehistoric or scientific interest that are of national importance.

Early historic parks were created in 1917 and 1918 and, by 1971, there were 51 major national historic parks and sites and some 600 plaques commemorating personages or events across the country. A site is declared of national historical significance by the Minister of Indian Affairs and Northern Development on the recommendation of the Historic Sites and Monuments Board of Canada, an advisory board whose members represent all provinces. In 1967, a National Historic Sites policy statement was approved by the Board, accepted by the Minister and tabled in the House of Commons for the information of Parliament. One of the main points of that policy statement recognized the need for a comprehensive long-range historic sites program, establishing proper thematic and regional priorities.

The national parks and national historic parks and sites are administered by a director, three assistant directors and three regional directors who are responsible for operations in the Western Region, the Central Region (Ontario and Quebec) and the Atlantic Region. Each regional director consults with the representatives of the staff components of the Branch—Financial and Management, Personnel, National Parks Service, National Historic Sites Service, and Program Co-ordination and Property Management. A resident superintendent manages each park and has the assistance of a staff of park wardens who protect the park and its natural features and enforce park regulations; park naturalists who explain the park to visitors and offer various educational services; and other administrative, maintenance, and visitor service personnel.

Each park is being developed to yield the recreational potential for which it is suited. A program was initiated in 1970 to encourage national, provincial and local associations and private citizens to express their views at special public hearings on development plans for specific parks. Sightseeing, camping, fishing, hiking, photography and nature study are the most popular forms of recreation common to the 19 parks now accessible to the public. There are campgrounds in almost every park; daily charges are \$1.50, \$2.00 or \$2.50 a day, depending on the services provided. Motor vehicles may enter parks in the

Twenty major "wild" rivers in the Yukon Territory were under study in the summer of 1971 to gain knowledge of their natural values and recreational potential. This project of the National and Historic Parks Branch of the Department of Indian Affairs and Northern Development was carried out by university students who travelled the waterways by canoe.



Atlantic Provinces free of charge but an admission fee, varying from 25 cents for a single entry to \$5 for an annual licence good for all parks, is payable on entering all parks in Western Canada and Point Pelee National Park in Ontario.

In order to accommodate the increasing number of visitors to Canada's national parks and to include representative and rare examples of the Canadian landscape, Canada's national parks system has, in the past few years, expanded more than at any other time in its history. In addition to the parks listed and described in Table 10, two areas in the Northwest Territories have been reserved for study as a basis for planning future national parks—a 2,860-sq.-mile area around Fort Reliance on the East Arm of Great Slave Lake and an 870-sq.-mile area along the South Nahanni River. The major national historic parks and sites are listed and described in Table 11.

## 10.—Location, Year Established, Area and Characteristics of National Parks

Park	Location	Year Estab- lished	Area  sq. miles	Characteristics
<b>National Parks</b>				
Terra Nova.....	On Bonavista Bay, New- foundland, 160 miles north of St. John's.	1957	153.0	Maritime area, rocky headlands and for- ests, salt and freshwater sport fishing. Serviced campgrounds and cabin accom- modation.
Gros Morne.....	On western coast of New- foundland, about 50 miles northwest of Cor- ner Brook.	1970	650.0	Coastal area rugged in nature with section of Long Range Mountains, fiord-like lakes, forests and waterfalls, Good fish- ing, Temporary campgrounds and other facilities operational by 1972.
Prince Edward Island..	North shore of Prince Edward Island.	1937	7.0	Strip 25 miles long on shores of Gulf of St. Lawrence. Recreational area, fine bathing beaches. Accessible by high- way. Motel and cabin accommodation. Serviced and semi-serviced camp- grounds.
Cape Breton Highlands.	Northern part of Cape Breton Island, N.S.	1936	367.0	Rugged Atlantic coastline with mountain- ous background. Fine seascapes. Re- creational opportunities. Hotel and cabin accommodation. Serviced and semi-serviced campgrounds.
Kejimikujik.....	In south-central Nova Scotia, about 40 miles northwest of Liverpool and 50 miles southeast of Digby.	1969	147.2	Inland park with many lakes and rivers. Hiking, canoeing, semi-serviced camp- grounds, swimming, interpretation pro- gram, picnic areas. Park contains his- toric Miamae Indian petroglyphs (rock carvings). Accessible by highway.
Fundy.....	On Bay of Fundy between Moncton and Saint John in New Brunswick.	1948	79.5	Delightful recreational area. Forested region, wildlife sanctuary, rugged terrain. Cabin accommodation. Serviced and semi-serviced campgrounds. Summer recreation.
Kouchibouguac.....	On northern section of Northumberland Strait, about 55 miles north of Moncton, N.B.	1969	90.0	Maritime park with 15½-mile sweep of off- shore sandbars offering excellent boating and fishing. Good fishing in many streams, rivers, lakes and ocean waters. Temporary campgrounds and other fac- ilities.
Forillon.....	Occupies most of Forillon Peninsula which juts from Quebec's Gaspé Peninsula into St. Law- rence Gulf.	1970	92.0	Coastal area with rugged cliffs and rolling, forested inland areas. Development re- flects area's natural history and its colourful human background. Temporary visitor facilities, including campgrounds.
La Mauricie.....	In central Quebec near Trois-Rivières.	1970	165.0	Heavily wooded section of Laurentian Mountains containing many lakes with excellent fishing. Temporary visitor facilities.
Georgian Bay Islands..	In Georgian Bay, near Honey Harbour, Ont.	1929	5.3	Recreational and camping area. Unusual geological formations on Flowerpot Is- land. Accessible by boat from nearby mainland points. Serviced and semi- serviced campgrounds on Beausoleil Is- land. Picnic areas.
Point Pelee.....	On Lake Erie near Leam- ington in southwestern Ontario.	1918	6.0	Wildlife sanctuary. Remarkable beaches, marsh area, southern flora, nature trail. Staging ground for migratory birds. Accessible by highway. Serviced camp- grounds.
St. Lawrence Islands...	In St. Lawrence River between Brockville and Kingston, Ont.	1914	1.2	Mainland area and 17 islands among the Thousand Islands. Recreational and camping area. Accessible by boat from nearby mainland points along provincial highway. Serviced campgrounds.



## 10.—Location, Year Established, Area and Characteristics of National Parks—continued

Park	Location	Year Estab- lished	Area  sq. miles	Characteristics
<b>National Parks— continued</b>				
Pukaskwa.....	On north shore of Lake Superior near Marathon and 150 air miles from Sault Ste. Marie.	1971	725.0	A newly created and still undeveloped park forming part of the Precambrian Shield. Wilderness area, including 50 miles of rugged lake shore, swift-flowing rivers and streams and many lakes.
Riding Mountain.....	Southwestern Manitoba, west of Lake Manitoba.	1929	1,148.0	Wildlife sanctuary on summit of escarpment. Fine lakes. Accessible by highway. Hotel and cabin accommodation. Serviced and semi-serviced campgrounds. Summer recreation. Skiing in winter.
Prince Albert.....	Central Saskatchewan, north of Prince Albert.	1927	1,496.0	Forested region dotted with lakes and interlaced with streams. Summer recreational area. Accessible by highway. Hotel and cabin accommodation. Serviced and semi-serviced campgrounds.
Banff.....	Western Alberta, on east slope of Rockies, 65 miles from Calgary.	1885	2,564.0	Magnificent scenic mountain area; noted resorts, Banff and Lake Louise. Mineral hot springs. Summer and winter sports. Accessible by rail and highway. Hotel and cabin accommodation. Serviced and semi-serviced campgrounds.
Elk Island.....	Central Alberta, near Edmonton.	1913	75.0	Fenced preserve containing large herd of buffalo; also deer, elk and moose. Popular summer recreational area. Accessible by highway. Cabin accommodation and serviced campgrounds.
Jasper.....	Western Alberta, on east slope of Rockies, 235 miles from Edmonton.	1907	4,200.0	Mountainous area and noted wildlife sanctuary. Majestic peaks, icefields, beautiful lakes and noted resort, Jasper. Mineral hot springs. Summer and winter sports. Accessible by rail and highway. Hotel and cabin accommodation. Serviced and semi-serviced campgrounds.
Waterton Lakes.....	Southern Alberta, adjoining Glacier Park in Montana, U.S.A.	1895	203.0	Canadian section, Waterton-Glacier International Peace Park. Mountainous area with spectacular peaks and beautiful lakes. Accessible by highway. Hotel and cabin accommodation. Serviced and semi-serviced campgrounds.
Glacier.....	Southeastern British Columbia on summit of the Selkirk Range.	1886	521.0	Superb alpine region, towering peaks, glaciers and forests. Climbing, skiing, camping. Accessible by Trans-Canada Highway and railway. Visitor accommodation. Semi-serviced campgrounds.
Kootenay.....	Southeastern British Columbia on west slope of Rockies.	1920	543.0	Includes Vermilion-Sinclair section of Banff-Windermere Highway. Broad valleys, deep canyons, mineral hot springs. Hotel and cabin accommodation. Serviced and semi-serviced campgrounds.
Mount Revelstoke.....	Southeastern British Columbia, on west slope of Selkirks.	1914	100.0	Rolling mountain-top plateau with colourful alpine meadows and mountain lakes. Championship ski runs and ski jump in winter. Campgrounds.
Yoho.....	Eastern British Columbia, on west slope of Rockies.	1886	507.0	Lofty peaks, magnificent waterfalls, colourful lakes. Yoho and Kicking Horse Valleys. Accessible by rail and highway. Hotel and lodge accommodation. Serviced and semi-serviced campgrounds.

**10.—Location, Year Established, Area and Characteristics of National Parks—concluded**

Park	Location	Year Estab- lished	Area  sq. miles	Characteristics
<b>National Parks— concluded</b>				
Pacific Rim.....	On western coast of Van- couver Island, B.C., near communities of Tofino and Ucluelet.	1970	150.0	Coastal environment area with sandy beaches, numerous islands, rain forests, lakes and the historic Lifesaving Trail. Swimming, fishing and surfing. Camp- grounds.
Wood Buffalo.....	Partly in Alberta and partly in Northwest Ter- ritories, between Atha- basca and Slave Rivers.	1922	17,300 <i>Alta.,</i> <i>13,650</i> <i>N.W.T.,</i> <i>3,650</i>	Immense region of forests and open plains. Mainly a wildlife sanctuary. Home of largest remaining herds of plains bison and wood bison on the North American Continent. Accessible from Fort Smith, N.W.T.

**11.—Location, Year Established and Characteristics of National Historic Parks and Sites**

Park	Location	Year Estab- lished	Characteristics
Signal Hill.....	St. John's, Nfld.....	1956	Site of 1762 battle between French and British and of many fortifications. Marconi made first transatlantic wireless transmission here in 1901.
Castle Hill .....	Placentia, Nfld.....	1968	Ruins of harbour fortifications begun by the French about 1664. Interpretation centre.
Fort Amherst.....	Prince Edward Island, near Rocky Point.	1967	Remaining earthworks of British fort built after 1758.
Fortress of Louisbourg....	Cape Breton Island, N.S., 25 miles from Sydney.	1940	Walled town built by French 1720-45 and de- molished by British 1759. Being partially reconstructed.
Fort Anne.....	Annapolis Royal, N.S.....	1917	Site of French fort first built about 1695-1708, finally captured and occupied by British in 1710. Museum and well-preserved earth- works.
Alexander Graham Bell...	Baddeck, N.S.....	1969	Museum containing mechanical and documen- tary records of research by the inventor.
Grand Pré.....	Grand Pré, N.S.....	1961	Commemorates the story of the Acadians and the New England Planters. Museum.
Halifax Citadel.....	Halifax, N.S.....	1956	Fortress constructed in 1820s and in 1850s. Museum.
York Redoubt.....	Halifax, N.S.....	1969	Perimeter harbour defence installations in use from 1793 to 1945.
Prince of Wales Martello Tower.....	Halifax, N.S.....	1951	Martello tower built by British, 1796-98.
Port Royal Habitation....	Port Royal, N.S., eight miles from Annapolis Royal.	1940	Reconstruction of "Habitation", first fort built in 1605 by Champlain and DeMonts.
Fort Beauséjour.....	New Brunswick, near Sack- ville.	1926	Site of French fort erected in mid-1700s. Mu- seum.
Fort Gaspéreau.....	Near Port Elgin, N.S.....	1923	Site of 1751 French fort.
Carleton Martello Tower.	Lancaster, N.B.....	1924	Harbour defence built during War of 1812.
St. Andrews Blockhouse..	St. Andrews, N.B.....	1938	Built during War of 1812.

# 11.—Location, Year Established and Characteristics of National Historic Parks and Sites

—concluded

Park	Location	Year Estab- lished	Characteristics
Cartier-Brébeuf Park.....	Quebec, Que.....	1969	Possible winteringsite of Jacques Cartier, 1535-36.
Quebec City Walls.....	Quebec, Que.....	..	Fortifications built by British in 1820s against feared American attack.
National Battlefields Park	Quebec, Que.....	..	Landscaped park on site of 1759 Battle of the Plains of Abraham.
Fort Chambly.....	Chambly, Que.....	1940	Fort built by the English in 1709-11. Museum.
Coteau-du-Lac.....	Coteau-du-Lac, Que.....	1929	Site of fort built in 1779.
Fort Lennox.....	Île aux Noix, Que., near St. Paul.	1940	Fort built by the French in 1759.
Laurier House.....	Ville-des-Laurentides, Que..	1941	Period restoration relating to early life of the famous Canadian Prime Minister.
Bellevue House.....	Kingston, Ont.....	1964	House lived in by Sir John A. Macdonald, first Prime Minister of Canada, about 1848.
Fort Malden.....	Amherstburg, Ont.....	1940	Site of defence post built in 1797-99. Museum.
Fort Wellington.....	Prescott, Ont.....	1940	Military garrison 1812-66.
Brock Monument.....	Queenston Heights, Ont.....	<sup>1</sup>	Monument commemorating British Major-General Isaac Brock, killed during the 1812 Battle of Queenston Heights.
Fort George.....	Niagara-on-the-Lake, Ont...	<sup>1</sup>	Reconstruction of British fortification built in 1797-1801.
Woodside.....	Kitchener, Ont.....	1954	Boyhood home of the Rt. Hon. William Lyon Mackenzie King, former Prime Minister of Canada.
Fort Prince of Wales.....	Northern Manitoba, near Churchill.	1940	Ruins of fort built 1733-71 to secure control of Hudson Bay for England.
Lower Fort Garry.....	Manitoba, 20 miles north of Winnipeg.	1951	Stone-walled fort built by the Hudson's Bay Company between 1831 and 1839.
Batoche.....	Near Duck Lake, Sask.....	1954	Site of final battle of Northwest Rebellion, 1885.
Fort Walsh.....	Merryflat, Sask.....	1926	Royal North West Mounted Police post established in 1875 in Cypress Hills Indian territory.
Fort Battleford.....	Saskatchewan, four miles south of North Battleford.	1951	North West Mounted Police post built in 1876. Museum.
Rocky Mountain House...	Rocky Mountain House, Alta.	1970	Trailer interpreting the history of this important fur trade post site.
Fort Langley.....	Fort Langley, B.C.....	1958	Partially restored trading post founded 1850. Colony of British Columbia proclaimed here 1858.
St. Roch.....	Vancouver, B.C.....	1954	Royal Canadian Mounted Police schooner, first vessel to navigate the northwest passage from west to east (1940-42); exhibited at the Vancouver Maritime Museum.
Fort Rodd Hill.....	Esquimalt, B.C.....	1962	Extensive nineteenth century stone and concrete coastal fortifications.
Dawson City.....	Dawson, Y.T.....	1969	Centre of the Klondike Gold Rush, includes S.S. Keno and Palace Grand Theatre.

<sup>1</sup> Acquired by the Federal Government from the Niagara Parks Commission in 1969.



Evidence of the increasing attraction of Canada's national parks and national historic parks and sites is the growing numbers of visitors as shown in Table 12.

**12.—Visitors to National Parks and National Historic Parks and Sites,  
Years Ended Mar. 31, 1967-71**

Park	1967	1968	1969	1970	1971
No.	No.	No.	No.	No.	No.
<b>National Parks</b>					
Terra Nova.....	179,647	292,798	247,338	307,939	353,013
Prince Edward Island.....	1,130,773	769,970	1,345,799	1,288,350	2,093,992
Cape Breton Highlands.....	851,653	810,651	689,973	729,797	787,600
Kejimikujik.....	..	..	58,751	104,195	125,228
Fundy.....	753,310	518,249	632,092	632,194	659,137
Georgian Bay Islands.....	10,438	14,927	24,706	38,786	41,398
Point Pelee.....	726,035	715,046	744,113	675,905	639,742
St. Lawrence Islands.....	122,304	149,580	102,830	150,758	108,346
Riding Mountain.....	738,724	731,172	759,967	793,072	755,210
Prince Albert.....	146,624	156,864	137,928	138,394	142,369
Banff.....	2,044,537	2,050,735	2,147,425	2,346,030	2,300,732
Elk Island.....	204,286	232,286	277,925	308,604	302,018
Jasper.....	595,164	652,186	834,748	1,135,558	1,317,637
Waterton Lakes.....	487,589	503,729	516,112	472,850	524,539
Glacier.....	917,264	885,947	871,672	898,654	857,748
Kootenay.....	722,743	684,519	637,589	852,677	887,645
Mount Revelstoke.....	872,367	894,286	913,671	887,822	884,869
Yoho.....	864,454	855,224	912,940	867,516	855,011
Wood Buffalo.....	..	..	..	..	..
<b>Totals, National Parks.....</b>	<b>11,367,912</b>	<b>10,918,169</b>	<b>11,855,579</b>	<b>12,629,101</b>	<b>13,607,234</b>
<b>National Historic Parks and Sites<sup>1</sup></b>					
Signal Hill.....	396,762	602,074	340,352	458,838	562,760
Castle Hill.....	..	..	7,965	17,568	12,306
Fort Amherst.....	26,076	33,618	50,595	52,281	50,423
Fortress of Louisbourg.....	193,127	194,653	194,373	225,706	306,721
Fort Anne.....	74,428	68,783	78,264	64,592	77,598
Alexander Graham Bell.....	121,804	108,351	137,841	124,274	126,454
Grand Pré.....	73,192	54,975	75,668	66,927	76,228
Halifax Citadel.....	328,386	533,152	664,375	754,716	708,124
York Redoubt.....	..	..	..	..	22,585
Prince of Wales Martello Tower.....	..	17,779	20,207	22,141	25,075
Port Royal Habitation.....	46,458	39,504	54,459	54,980	60,427
Fort Beauséjour.....	53,299	59,094	70,160	77,155	105,066
Carleton Martello Tower.....	43,984	44,443	50,836	51,163	54,670
Fort Chambly.....	132,700	123,046	123,874	120,994	120,696
Coteau-du-Lac.....	..	..	15,005	26,119	19,729
Fort Lennox.....	29,995	39,616	46,331	49,358	43,578
Laurier House.....	7,872	9,312	10,934	9,718	12,152
Bellevue House.....	..	29,052	18,937	22,760	29,192
Fort Malden.....	64,025	68,432	73,270	66,032	65,804
Fort Wellington.....	60,495	76,799	58,880	70,036	91,583
Brock Monument.....	..	..	..	..	31,472
Fort George.....	..	..	..	..	113,750
Woodside.....	14,309	16,158	15,765	18,820	20,280
Fort Prince of Wales.....	526	242	669	228	2,419
Lower Fort Garry.....	107,303	132,620	137,368	175,822	246,649
Batoche.....	9,580	12,994	13,336	13,404	15,564
Fort Walsh.....	..	..	..	..	16,313
Fort Battleford.....	43,111	42,803	43,431	46,468	47,622
Fort Langley.....	133,237	123,204	122,394	130,128	102,710
Fort Rodd Hill.....	58,810	79,051	106,422	109,594	90,946
Dawson City.....	12,849	9,033	9,523	10,070	27,108
<b>Totals, National Historic Parks and Sites.....</b>	<b>2,032,328</b>	<b>2,518,788</b>	<b>2,541,234</b>	<b>2,839,892</b>	<b>3,286,004</b>
<b>Grand Totals.....</b>	<b>13,400,240</b>	<b>13,436,957</b>	<b>14,396,813</b>	<b>15,468,993</b>	<b>16,893,238</b>

<sup>1</sup> Sites for which visitor data are available.

**Gatineau Park.**—In addition to the national parks described in Table 10, a 138-sq.-mile recreation area known as Gatineau Park is being developed north of the cities of Ottawa and Hull. Although not designated as a national park, this area is being developed by the Federal Government as part of the National Capital Region and is under the care of the National Capital Commission. It is a wilderness area of great potential, extending northward from Hull for 35 miles. It now has 25 miles of parkway, magnificent lookouts, lakes, fishing streams, beaches, picnic areas, camping sites and walking trails and is already one of the finest recreation areas in Canada, enjoyed by well over 1,750,000 visitors each year. A master plan for its further development is under way.

### Subsection 3.—Provincial Parks

Most of the provincial governments of Canada have established parks within their boundaries. Some of these, particularly in Quebec and Ontario, are wilderness areas set aside in order that some portions of the country might be retained in their natural state without change brought about by the hand of man. Most of them, however, are smaller areas of exceptional scenic or other interest which are easily accessible and are equipped or slated for future development as recreational parks with camping and picnic facilities. The more important parks in each province are mentioned briefly in the following paragraphs.

**Newfoundland.**—Altogether, 3,098 sq. miles of wilderness, reservations and parklands in Newfoundland are administered by provincial government agencies. All but 240 sq. miles of that area are in two wilderness reserves designated as protected habitat for caribou and are administered by the Wildlife Division of the Department of Mines, Agriculture and Resources. The 240 sq. miles of developed and reserved public parkland are under the jurisdiction of the Provincial Parks Service of the Department of Economic Development. Of that area, 198 sq. miles are in 28 undeveloped park reservations and the remaining 42 sq. miles are in 36 provincial parks. Operation of these parks is directed toward the preservation of natural environment and most of them are located in wilderness areas, developed only for picnicking and camping. Regulations prohibit hunting and logging but sport fishing is permitted. Use of the parks by campers continues to increase each year. In 1970 it amounted to a total of 148,132 camp and trailer days, almost 22 p.c. more than in 1969.

**Prince Edward Island.**—Twenty areas have been developed as provincial parks including Strathgartney Park, a 40-acre tract of land on the Trans-Canada Highway between Charlottetown and Borden, which is an excellent picnic site and campground with its hardwood groves, fresh spring water and beautiful view over the West River and the surrounding country; Lord Selkirk Park, an area of 30 acres at Eldon, is of historic interest in that it contains an old French cemetery and marks the spot on the shoreline where Lord Selkirk landed; Brudenell River Park and Golf Course, comprising 296 acres at Roseneath, has a considerable area of woodland and runs to the shore of the Brudenell River; Jacques Cartier Park, an area of 22 acres at Kildare Beach four miles from Alberton, is of historic significance as the place where Jacques Cartier first landed on Prince Edward Island; Green Park, 45 acres on the Trout River, is an attractive combination of land, trees and water and is also of interest as a historic shipbuilding centre; Cabot Park at Malpeque, named in honour of the famous explorer, John Cabot, is a 54-acre area with beautiful sandy beaches and an interesting museum; and several small parks have been developed or are under development. A fee of \$3.50 is charged for serviced tent and trailer sites and of \$2.50 for unserviced sites. The parks are maintained by the Department of Tourist Development.

**Nova Scotia.**—A provincial park system is under development in Nova Scotia by the Department of Lands and Forests, which will include a network of picnic parks accessible from major highways for day use and a series of camping parks for overnight visitors. The

need is also recognized for acquisition and development of provincial beaches, particularly along the warm waters of Northumberland Strait. The major camping parks in use at the end of 1970 included Whycoomagh Park overlooking Bras d'Or Lake in Cape Breton; Laurie and Porter's Lake Parks near Halifax; Caribou and Tatamagouche Parks on Northumberland Strait; Wentworth Park in the Wentworth Valley; Smiley Park in the Annapolis Valley; Islands Park on the south shore; Mira River Park between Sydney and Louisbourg; Battery Park at St. Peters canal; Valleyview Park overlooking the Annapolis Valley; Ellenwood Lake Park in the southwest near Yarmouth; Five Islands Park overlooking Minas Basin; Saltsprings Park in Pictou County; and Boylston Park between Boylston and Guysborough. Several other camping parks and picnic parks were in process of development.

The policy of the Department is to provide good basic facilities, leaving scope for private enterprise to offer more sophisticated items such as showers, etc. Use of the picnic parks is free but there is a nightly charge of \$1.50 in camping parks. Concessions are not permitted under present policy.

**New Brunswick.**—The New Brunswick provincial park system, which is administered by the Department of Tourism, includes 22 recreational parks ranging in size from 25 to 1,400 acres, 24 picnicground parks, 11 campground parks, six beach parks, a marine park and a resource park. Most of the park sites are located in rural areas, fairly evenly distributed throughout the province, and are adjacent to or easily accessible from main trunk roads. All parks contain tables, some form of toilet facility and a potable water supply but more elaborate facilities are available in the larger parks. A vehicle fee is charged at some parks and a daily camping fee of \$2 to \$2.50 is in effect at 25 of the larger parks. The Department also maintains a wildlife park at Woolastook near Fredericton where various species of wildlife to be found in the province are displayed.

In 1970, more than 3,500,000 persons visited the provincial parks, 170,000 of them campers; 75 p.c. of the campers using park sites came from outside the province.

A five-year federal-provincial (ARDA) program of expansion and improvement of park and campground facilities in the province was recently completed; this included the development of approximately 1,000 tent and trailer sites, accommodation for day-use of beaches, forest and wildlife recreation areas, scenic lookouts, etc., land purchase, and provision of special facilities where warranted by intensity of use, such as boats, ramps, docks, canteens and playgrounds. A new program is being negotiated.

**Quebec.**—The Province of Quebec has set aside an exceedingly large proportion of its territory as parks for the purpose of conserving the natural resources and providing areas for open-air recreation. Its major parks extend over almost 75,000 sq. miles, which amounts to about 13 p.c. of the area of the province and, excluding James Bay Park, covers nearly 20 p.c. of the forest area south of the 52nd parallel.

In all, there are 30 major parks, the oldest of which are Mont Tremblant Park dating back to 1894 and Laurentide Park to 1895. Mont Tremblant Park, an area of 990 sq. miles, is located 80 miles north of Montreal and is situated within one of the most extensively used summer and winter recreational areas of the province. The first concern in the establishment of Laurentide Park, an area of 4,059 sq. miles lying 30 miles north of Quebec City, was the conservation of the caribou, then in danger of dying out. Unfortunately, the protection afforded was not sufficient to preserve these animals but they have recently been re-introduced into the park area with more success. Gaspé Park, an area of 498 sq. miles, was established in 1937, also for the purpose of protecting the caribou and there a herd can now be found on Mont Albert. La Vérendrye Park, a 5,257-sq.-mile wilderness area 140 miles northwest of Montreal, was created in 1939 as the Mont Laurier-Senneterre Highway Fish and Game Reserve and was renamed in 1950 to honour the illustrious Canadian explorer, Pierre Gaultier de Varennes, Sieur de La Vérendrye, who discovered the Rocky Mountains. Mont Orford Park, a smaller area of 15 sq. miles west of Sherbrooke in the Eastern Townships, was established in 1938 and has become a highly specialized regional recreation area, devoted principally to camping.



Since then, more than 20 parks have been created:—

<i>Name and Year Established</i>	<i>Area</i>	<i>Name and Year Established</i>	<i>Area</i>
	sq. miles		sq. miles
Aiguebelle (1945).....	100	Causapsal (1964).....	146
Chibougamau (1946).....	4,257	Papineau (1965).....	300
Port Daniel (1948).....	25	Port Cartier-Sept îles (1965).....	3,250
Mistassini (1948).....	13,123	Upper St. Maurice Valley (1965)...	6,673
Shickshocks (1949).....	316	Portneuf (1967).....	292
Kipawa (1950).....	1,090	Pontiac (1967).....	538
Chicoutimi (1959).....	678	Chute St. Philippe (1967).....	46
James Bay (1960).....	23,823	Cap Chat (1968).....	47
Assinica (1961).....	2,712	Forestville (1968).....	503
Baie Comeau-Hauterive (1961)...	2,170	Mastigouche (1971).....	703
Rimouski (1962).....	299	Joliette (1971).....	215
Matane (1962).....	417	Labelle (1971).....	366
St. Maurice (1963).....	617		
Labrieville (1964).....	165		

Perhaps the most popular activity in Quebec parks is fishing and the three new parks that came into use in 1971—Mastigouche, Joliette and Labelle—were established for the purpose of giving more anglers access to many lakes and rivers in proximity to large urban centres. Papineau Park, which was established in 1965, was also made accessible to a larger public. To assist in the greater use of these facilities, a system has been set up whereby anglers may make reservations to fish for one day only by telephoning the park reception centre at least 48 hours in advance. Reservations are accepted in the order in which they are made, without discrimination. The Quebec Government years ago set aside a number of rivers as fishing reserves for public use, particularly for salmon fishing. They include the St. Jean, Petite Cascapédia, Matapédia, Ste. Anne, Cap Chat and Matane Rivers in the Gaspé area, the Moisie and Laval Rivers along the north shore of the St. Lawrence, and the Petit Saguenay, a tributary of the Saguenay River.

Hunting is generally prohibited in the parks but a controlled moose hunt, authorized as a wildlife-management technique, has been permitted for Quebec residents only in Laurentide, La Vérendrye, Matane, Portneuf, St. Maurice and Upper St. Maurice Valley Parks. Hunting is also permitted in Rimouski Park under certain conditions.

The Parks Branch of the Department of Tourism, Fish and Game has recently added to the number of campsites in the province to meet the growing popularity of that form of recreation, supplementing the network of privately operated sites. In the eastern portion of the province, provincial campsites are located at Carleton, Port Daniel, Moisie, Mont St. Pierre, Percé and Trois Pistoles. Camping areas closer to Quebec City include St. Alexandre (Kamouraska), Montmagny, St. Jean (Île d'Orléans), Stoneham, Villeneuve, Vincennes (Beaumont), St. Camille (Bellechasse) and St. Joseph de Beauce. Those in the general area of Montreal are Mont Orford, des Voltigeurs (Drummondville), Waterloo, Côte Ste. Catherine, Paul Sauvé (Oka), Dollard des Ormeaux, Pointe des Cascades, Coteau Landing and Ste. Véronique.

In a number of parks, trails have been marked and facilities set up for the use of snow-mobile enthusiasts, enabling them to enjoy in safety the natural beauty of the surroundings. Such facilities are provided in the winter season at Rimouski, Laurentide, Chibougamau, St. Maurice, Mont Tremblant and Dollard des Ormeaux Parks and at Paul Sauvé Park at Oka and Darwin Falls at Rawdon.

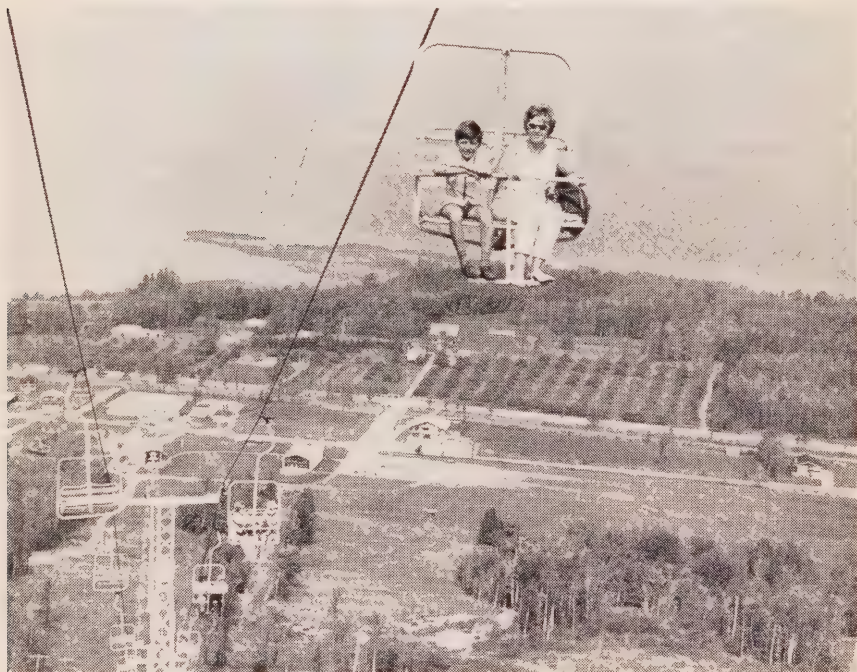
Another winter sport that is gaining in popularity is cross-country skiing. This is less expensive than down-hill skiing and has become a favourite sport for families and groups of friends. Ski trails have been laid out in a few parks, particularly in the Mercier Camp area of Laurentide Park where a heated relay station is available for skiers and for snowshoers, who have also become quite numerous in recent years. The cross-country trails are well marked and are of various lengths and degrees of difficulty so as to suit the skills of beginners and experts alike.

**Ontario.**—In 1970 there were 108 provincial parks available for public use in Ontario and several new parks were in process of development; 78 other areas, comprising 1,937 sq. miles, were held in reserve for future development. The total area of the Ontario provincial park system was about 16,000 sq. miles. The parklands are administered by the Parks and Recreation Areas Branch of the Department of Lands and Forests.

The seven largest parks—Polar Bear, Algonquin, Quetico, Lake Superior, Missinaibi, Killarney and Sibley—together have an area of about 12,725 sq. miles. Polar Bear Park is the largest in the system, occupying 7,000 sq. miles of Hudson Bay Lowland bordering Hudson and James Bays containing boreal forest, tundra and arctic flora and fauna. Algonquin Park is a beautiful area 2,910 sq. miles in extent, 180 miles north of Toronto and 105 miles west of Ottawa; it has 14 picnic and camping areas which are accessible by car from Highway 60 and offers particularly fine canoeing opportunities in its interior. Killarney Park is accessible by Highway 637 from Highway 69 south of Sudbury. Quetico Park, covering 1,750 sq. miles, is accessible by Highway 11 at the Dawson Trail Campground on French Lake and also by water by way of Basswood Lake in the south. Highway 17 north from Sault Ste. Marie gives access to Lake Superior Park, and Sibley Park may be reached by road from Highway 17 east from Thunder Bay. Missinaibi Park, 176 sq. miles in extent, surrounds Missinaibi Lake, 55 miles north of Chapleau. The lake is renowned for walleye fishing and is the site of an important Hudson Bay trading post.

Under the Wilderness Areas Act of 1959, 40 areas have been established, widely distributed across the province. They vary in size, character and significance but all were established as being important for their historic, scientific, aesthetic or cultural values. The largest is a 938-sq.-mile block covering the Pukaskwa area on the north shore of Lake Superior. Most other wilderness areas are one square mile or less in size.

*A ski lift in the popular Collingwood area of Ontario gives summer visitors a magnificent view of Georgian Bay.*



In 1967 a policy of park classification and parkland zoning was established to achieve a balanced park system and to provide a framework for positive and effective development and management. Five park classes were established—primitive, natural environment or heritage, wild river, nature reserve, and recreation. Comparable zones within parks were also established—primitive, natural, historic, multiple use, and recreation. Some areas once protected under the Wilderness Areas Act for their scientific values are being changed in law to be protected as nature reserves under the Provincial Parks Act. There are now six nature reserves, four of which were previously under the Wilderness Areas Act. All nature reserves contain natural features and phenomena that are either unique or typical of the primitive or contemporary landscapes which together form the ecological mosaic of Ontario. By the end of 1970, there were five wild river parks in existence, three of which, all located in the central section of northern Ontario, were established during the year—Mississagi, Chapleau-Nemegosenda and Lady Evelyn.

Ontario has made another advance in meeting the rising pressures for recreational space by applying the concept of the recreational reserve. It has created the North Georgian Bay Recreational Reserve which covers 4,500 sq. miles of interesting country lying generally between Algoma and Parry Sound on the north shore of Georgian Bay and includes the channel between Manitoulin Island and the mainland, the 30,000 Islands, the famous route of the voyageurs by way of the French River, the remaining shoreline of Lake Nipissing and the La Cloche Mountains. The Reserve is not a provincial park nor is it a Wilderness Area but an area following a normal course of development which is already used extensively for recreation. The plan is, by guiding the evolution of the area, to realize its full potential as a recreational paradise serving all types of needs and co-existing with a landscape of normal activity.

Ontario's vast lakeland areas make this province a vacation paradise and the number of park visitors increases year by year. In 1970, 12,172,254 persons attended, of whom 1,531,528 were campers making use of the 18,272 campsites provided for them. The charge for vehicle entry in 1970 was \$1 a day or \$10 a year, and the camping charge was \$2.50 a night which included vehicle entry. Picnic tables, fireplaces, fuelwood, tested drinking water and washrooms are provided at supervised tent and trailer campgrounds and many parks have trailer sanitation stations. Interpretative and naturalist programs are being expanded continually and such services as museums, outdoor exhibits, conducted trips, illustrated talks and labelled nature trails are available in many parks.

**Manitoba.**—The provincial parks system of Manitoba, administered by the Parks Branch of the Department of Tourism, Recreation and Cultural Affairs, consists of four major classifications of outdoor recreation development: provincial parks, which are large area parks with a variety of natural attractions suited to outdoor activities; recreation areas, the natural attractions of which are modified to accommodate recreation activities of an intensive nature; waysides, which are located on most highways to enhance travel routes and provide attractive rest stops; and heritage areas, which are areas of outstanding scenic beauty or have natural, physical or historic features of special local interest.

There are ten provincial parks in Manitoba, six of which are well established. Birds Hill Provincial Park comprises 8,400 acres and an 80-acre man-made lake within easy reach of the Manitoba capital. In south-central Manitoba, Spruce Woods Provincial Park is set in an area thriving with wildlife, woods and wildflowers along the valley of the Assiniboine River, and also features lookouts over the shifting sand dunes of the Bald Head Hills, the province's only truly desert area. Near the western boundary, Assinippi Provincial Park is under development on the southern end of a 45-mile-long man-made lake behind the Shellmouth Dam on the Assiniboine. The Shellmouth reservoir will provide for development of water-based facilities on a large scale for western Manitoba residents and visitors.

Hecla Island Provincial Park is the most recent addition to the parks system. This park includes a group of islands of which Hecla is the largest and adds over 7,300 acres of



land and 140,000 acres of water area in the southern section of Lake Winnipeg. Grindstone Point, adjacent to Hecla Island Provincial Park, is also being developed as a recreation area in conjunction with the park. Hecla Island is connected by causeway to the mainland and Highway 8. Park developments will offer resort facilities for water sports, hiking, snowmobiling, hunting and fishing and will include a marina and an interpretative centre. Hecla village will be developed as a historic Icelandic fishing site.

Manitoba provincial parks have a total area of about 3,190 sq. miles. In addition, there are 41 recreation areas ranging in size from four to 2,364 acres, and more than 90 roadside facilities. The park system contains 51 campgrounds. Hunting and fishing lodges are common and accommodation in some of the parks ranges from modern resorts and motels to hotels and cabins. Golf, tennis, boating, swimming, fishing, riding and hiking facilities are available, as well as children's playgrounds. A major ski area and a system of snowmobile trails provide for growing participation in winter outdoor activities. Over 100 commercial concessions operate within the parks system, offering a variety of services ranging from restaurants to riding stables and marinas.

Rehabilitation and expansion of existing recreation areas are continuing in an effort to provide new camping and improved day-use facilities. Development is continuing, too, in the heritage-area program to preserve and interpret sites, large and small, illustrating the natural and human history of the province. Surveys have been conducted to study potentials along the shorelines of Lake Winnipeg and Lake Manitoba and provide guidance for future development of recreational facilities in Manitoba's interlake area.

Popularity of the Manitoba provincial parks and recreation areas is indicated by impressive annual increases in the number of park visitors. In the three years ended Mar. 31, 1971, the numbers were estimated at 1,776,000, 2,420,000 and 2,650,000, respectively. An estimated 83,600 families and groups in tents, trailers and truck campers utilized campground facilities across the province in the 1970-71 fiscal year, an increase of nearly 14,000 over the previous year. The admission fee to Manitoba's provincial parks is \$1 a day or \$5 for the season.

**Saskatchewan.**—Saskatchewan's 15 provincial parks, comprising 1,821 sq. miles of recreation land, range from forested parklands in the midst of the sprawling prairie to valley parks between the soft hillsides of the legendary Qu'Appelle and rugged northland settings. Each park offers camping, picnicking, boating and swimming facilities and a variety of recreational activities. Eleven of the parks operate a supervised recreation program of regularly scheduled activities for all ages—arts and crafts, hikes along park nature trails, social functions and numerous team sports. Moose Mountain boasts a dignified split-fieldstone chalet and other modern cabin accommodation. Cabin facilities are also found at Cypress Hills, Duck Mountain and Greenwater Lake Parks. Golf courses are found at Cypress Hills, Moose Mountain and Duck Mountain Parks. In Cypress Hills Park, with its unique forest cover of stately lodgepole pine and white spruce, are found elk, antelope, deer, beaver, sharp-tailed grouse and quiet trout-stocked streams. In Duck Mountain, Moose Mountain and Greenwater Lake Parks, moose, elk and bear appear variously and deer and beaver are common to all, as are several varieties of grouse and many species of waterfowl and smaller land birds. Pike, pickerel and perch abound in almost all park lakes and brook and rainbow trout are ardently sought in northern waters. Canoe routes and commercially operated fishing and hunting camps are found in the province's three wilderness parks—La Ronge, Nipawin and Meadow Lake. Hundreds of roadside camp and picnic grounds are in operation. Four official campgrounds and several other camping areas dot the province's 406-mile stretch of Trans-Canada Highway. Here, campers and picnickers relax in picturesque settings, contrasting the flat prairie highway. Saskatchewan also operates 74 regional parks which, although designed primarily with local patrons in mind, attract large numbers of tourists.

Marked sites of historic interest number 143 and include the Wood Mountain NWMP Post, Last Mountain House, Touchwood Hills, Cannington Manor, Steele Narrows, Fort Carlton and Cumberland House Historic Parks.

**Alberta.**—The Province of Alberta has 51 provincial parks containing 218 sq. miles; 46, with a total area of approximately 208 sq. miles, are in use and continuing development. Cypress Hills Provincial Park with an area of 78 sq. miles is the largest and is situated in the southeast portion of the province. Other parks are: Aspen Beach, Beauvais Lake, Big Hill Springs, Big Kuife, Bow Valley, Bragg Creek, Calling Lake, Chain Lakes, Crimson Lake, Cross Lake, Dillberry Lake, Dinosaur, Dry Island Buffalo Jump, Entrance, Garner Lake, Gooseberry Lake, Gregoire Lake, Hasse Lake, Hommy, Jarvis Bay, Kinbrook Island, Lac Cardinal, Lesser Slave Lake, Little Bow, Little Fish Lake, Long Lake, Ma-Me-O, Miquelon, Moonshine, Moose Lake, O'Brien, Park Lake, Pembina River, Pigeon Lake, Police Outpost, Red Lodge, Rochon Sands, Saskatoon Island, Sir Winston Churchill, Taber, Thunder Lake, The Vermilion, Tillebrook, Trans-Canada Campsite, Wabamun Lake, Williamson, Willow Creek, Winagami Lake, Woolford, Writing-On-Stone, Youngs Point. These parks, which are generally provided with picnic, camping and playground facilities, are maintained by the Department of Lands and Forests, Provincial Parks Division, primarily for the recreation and enjoyment of residents and visitors. There is a park within easy reach of almost every town. The most northerly park is Gregoire Lake, about 20 miles south of Fort McMurray and the southernmost park is Police Outpost which adjoins the Alberta-Montana border. Alberta's provincial parks were visited by 5,187,152 tourists and vacationists between Apr. 1, 1970 and Mar. 31, 1971.

In addition to the recreational parks, 26 sites have been established to mark and preserve locations of historical interest. They are Athabasca Landing, Buckingham House, Bugnet Plantation, Coronation Boundary Marker, Early Man Site, Fort DeL'Isle, Fort George, Fort Vermilion, Fort Victoria, Fort White Earth, Frog Lake Massacre, Grizzly Bear Telegraph Station, Hay Lakes Telegraph Station, Head-Smashed-In Buffalo Jump, Massacre Butte, Ribstones, Rocky Mountain House Fort, Standoff, Stephansson, Twelve Foot Davis, Shaw Woolen Mill, Rev. George McDougall's Death Site, McLeod Fort, Indian Stone Pile, St. Joseph Industrial School and Old Women's Buffalo Jump.

Provided also for Albertans are the Willmore Wilderness Provincial Park which adjoins Jasper National Park in the north and extends along the British Columbia border, and two wilderness areas established under the Forest Reserves Act in 1961. Willmore Wilderness Provincial Park has an area of 2,149 sq. miles, Siffleur Wilderness 159 sq. miles and White Goat Wilderness 489 sq. miles. The Ghost River Wilderness area of 59 sq. miles was established under the Provincial Parks Act in 1967. The wilderness areas have been set aside to preserve as far as possible the natural scene and are neither subject to any development nor provided with roads. The Wilderness areas are complemented by five natural areas established during 1968-70 in representative zones of the province—Kootenay Plains Natural Area in the mountain region (13 sq. miles), Foothills Natural Area (160 acres), Parkland Natural Area (159.2 acres), Brown-Lowrey Natural Area (640 acres) and Red Rock Coulee Natural Area (801 acres).

**British Columbia.**—There are 285 (175 developed) provincial parks in British Columbia, having a total area of about 10,134 sq. miles. These parks are classified as A, B and C. Class A parks are intended to preserve outstanding natural, scenic and historic features of the province for public recreation; they have a high degree of legislative protection against exploitation and alienation. Class B parks are also primarily for the protection of natural attractions but other resource use may be permitted if it does not unduly impair recreational values. Class C parks are intended primarily for the use of local residents and are usually managed by local park boards. Nature Conservancy Areas in any park are fully protected from resource development and are dedicated to a variety of recreational uses. There are immense wilderness areas such as Tweedsmuir Park and Wells Gray Park and outstanding scenic and mountain reserves such as Garibaldi, Mount Robson, Manning and Bowron Lake Parks. The formal gardens of Peace Arch Park are a monument to the goodwill between Canada and the United States. Vancouver Island has a chain of small forested parks that have achieved tremendous popularity with





*Montague Harbour is one of British Columbia's many marine parks developed for the use of water-borne vacationers.*

tourists; the best known are Little Qualicum Falls, Miracle Beach and Goldstream. The famous gold town of Barkerville has been restored and became the first Provincial Historic Park; Fort Steele in the East Kootenay area is also being restored to preserve another of British Columbia's pioneer settlements. Twelve marine parks with mooring facilities and campgrounds have been developed on mainland inlets and coastal islands for the benefit of water-borne vacationers.

The popularity of British Columbia's parks, with their integrated campgrounds and picnic areas, is attested by the fact that about 7,541,000 park visits were recorded during 1970; about 25 p.c. of the visitors were campers and the remainder day visitors. Records show that Mount Seymour, Cultus Lake and Golden Ears Parks were the most widely used.

#### **Subsection 4.—Ottawa, Canada's National Capital\***

Canada's Capital lies in a magnificent natural setting, with its hub on the limestone bluff on the south shore of the Ottawa River below the Chaudière Falls. The original inhabitants in this area were the Algonquin Indians, who were driven out by the fierce Iroquois by the middle of the seventeenth century. Champlain explored the Ottawa in 1613 and called it the "la grande rivière des Algomequins", Early English traders called it the Grand River. "Ottawa" is the anglicized form of Outaouac or Outaouais, the name of the Indian tribe from Lake Huron which traded with the French in the seventeenth century. They carried their furs by this river. Explorers, fur-traders, missionaries, and, during the nineteenth century, lumbermen and settlers travelled up and down the Ottawa River.

\* Revised by the Information Services, National Capital Commission, Ottawa.



The first settlement in this region was founded by Philemon Wright, from Woburn, Massachusetts. Early in 1800 he led a small group of farmers and established a settlement in what is now Hull. He also brought in tradesmen and soon had a small self-sufficient community. Wright started the great Ottawa Valley timber trade by taking a raft to Quebec City in 1806, fortuitously meeting England's need for an alternative source of timber when Napoléon had closed the Baltic timber trade.

Settlement on the south shore of the river commenced in earnest about a generation later. The War of 1812 drew attention to the vulnerability of the line of communications along the St. Lawrence River linking Quebec City with the settlements in Upper Canada. A secure alternative route was needed. After many delays and studies, a new route to Kingston via the Ottawa River and Rideau and Cataragui river systems was approved. Finally, in 1826, Lieutenant-Colonel John By of the Royal Engineers was sent to the Chaudière area to build a canal from that point to Kingston. By employed two companies of Royal Sappers and Miners and a labour force, mainly Irish, of several thousand men to construct the canal. In 1823, the Earl of Dalhousie, Governor-in-Chief of British North America, had secured commanding ground for the Town. In 1827, By laid out two settlements, Upper Town and Lower Town, adjacent to this Crown land, at that time called Barrack Hill. The canal was completed in 1832 and Bytown began to grow and prosper. Stores, factories, banks, churches and schools appeared. Steamboats plied the river and canal. A newspaper, the *Bytown Gazette*, was started in 1836.

Bytown was now the inland centre of the squared timber trade and by 1850 could boast of some fine stone buildings, among them the home of Thomas MacKay which today forms the central part of the residence of the Governor General of Canada. A change then occurred in the timber industry; the British system of preferential import duties on squared white and red pine logs was abandoned and trade began to decline. However, by this time the accessible forest stands of the eastern United States were depleted and sawn lumber was needed to house a growing population. Also, the American railway and canal network had extended to the Canadian border, making transportation easy. Encouraged by these favourable conditions American industrialists came to Bytown and established large saw-mills by the Chaudière Falls. Soon the islands about the falls and the flats on both shores were covered with lumber piles and loaded barges were on their way to the American market. The lumber industry began its rise to dominating importance.

At the beginning of 1855, Bytown became a city and took the name Ottawa. Two years later it received a great honour and assumed a great responsibility. The United Province of Canada, since its formation in 1841, had shuttled its capital between Kingston, Toronto, Montreal and Quebec and was now trying to agree on a permanent site. At the end of 1857, Queen Victoria settled the dispute by choosing Ottawa. Government buildings for the new capital were designed and contracts were let in 1859 for their construction. However, the task was hard and the cost much greater than expected and it was not until 1866 that the government of the Province of Canada actually moved to Ottawa. The next year the first Parliament of the new Dominion of Canada met in an incomplete Parliament Building, situated on the former Barrack Hill.

The nation enjoyed a brief prosperity during most of the next decade. Ottawa grew and the government expanded as the Dominion extended its authority over more and more of British North America. In 1871 the city had a population of about 22,000. Many fine homes and stores in stone and brick were built. The Departmental Buildings, flanking the Parliament Building on the Hill, were enlarged. An old wooden City Hall near the Canal was replaced in 1876 by a fine stone building and a large post office was erected at the city's centre. By the end of the nineteenth century, Ottawa was a flourishing industrial centre with a population of 59,000. It remained the hub of the lumber industry of Eastern Canada, had the largest paper mills in the country and the leading match factory in the world. However, little effort had been made to preserve or enhance its natural beauty until the Ottawa Improvement Commission was formed in 1899 and the Driveway along the Rideau Canal was begun. Even so, progress was slow in this direction, but in the years up

to the beginning of the First World War the city centre began to take on a new face. Many new government buildings were built—the Dominion Observatory and the Geodetic Building at the Experimental Farm, the Archives Building, the Victoria Memorial Museum, the Royal Canadian Mint and the Connaught Building. In 1912, the Grand Trunk Railway completed construction of the Union Station and the Chateau Laurier. During this period several studies were made and plans recommended for the improvement of the national capital, but these were deferred because of the War and for other reasons. Fire destroyed the Parliament Building in 1916, leaving standing only the Library now forming part of the magnificent building of neo-Gothic architecture which replaced it. The beautification of the capital was continued by the Ottawa Improvement Commission until 1927, when it was replaced by the Federal District Commission. However, the first concrete step in the redevelopment of the National Capital took place in 1951 with the tabling of a comprehensive master plan for the National Capital Region. The plan, referred to as the “Gréber Plan”, brought a solution to the many problems impeding the growth of the region and the National Capital Commission was formed in 1959 to carry out the recommendations.

Ottawa today, with its population of close to 300,000, together with the city of Hull on the north side of the Ottawa River with its population of about 63,000, comprises the core of the National Capital Region, an area of about 1,800 square miles located in the Provinces of Ontario and Quebec. In lineal distance, the nearest extremity of the Region to Parliament Hill is 18 miles and the farthest is 35 miles. Within that area there are 57 municipalities and a total population of about 600,000. Industrial development in the Region is limited, a good proportion of the work force being employed by the Federal Government or associated with government functions.

Although the terms of reference of the National Capital Commission are “to prepare plans for and assist in the development, conservation and improvement of the National Capital Region in order that the nature and character of the seat of the Government of Canada may be in accordance with its national significance”, it should be noted that the Commission does not have jurisdictional authority over any of the municipal or regional authorities or the two provincial governments concerned. Most matters affecting the municipalities—such as planning, zoning, land use, building density, public transit, parking and construction of streets, arterial roads and highways—are within their sole jurisdiction, subject only to provincial government approval, so that the National Capital Commission in its development efforts depends essentially upon the co-operation of each municipality and provincial government. As a result of this co-operation, the cities of Ottawa and Hull and their surrounding areas have, as a whole, become an efficient and aesthetically satisfying place in which to carry on the nation's business and a fitting symbol of Canada's cultural and linguistic values.

The recreational amenities of the Region, and especially those in Ottawa and Hull, have been developed for people to use and enjoy. To the advantages of the well-known scenic driveways and large parks and playgrounds have recently been added the pleasures of a four-mile ice skating rink along the Rideau Canal through the heart of Ottawa, of large garden allotments where families may hoe and gossip in open air and sun, and of fifty miles of looping bicycle paths winding past waterways and through pleasant wooded areas. Public concerts in the parks, walking tours, attractive pedestrian malls and museums are there for the participation of all Canadians and their visitors and the Region has become a centre of national significance in which all may have a sense of pride and possession.

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*The central city skyline from the Ottawa River parkway.*

Photos by  
Malak



*The City Hall on Green Island, at the junction of the Rideau and Ottawa Rivers.*

*Sparks Street mall.*

*A bicycle path winding through the autumn woods.*



*The four-mile skating rink on the Rideau Canal.*



Ottawa, where most of the Federal Government's business is conducted, has become a capital of which all the nation can be justly proud. Through the years, its planners and builders have taken full advantage of its magnificent setting and have made it a very pleasant place in which to live—winter and summer, spring and fall.

*A tree-lined residential street.*



*The Changing of the Guard, a summer attraction on Parliament Hill.*







# CHAPTER II.—CONSTITUTION AND GOVERNMENT\*

## CONSPECTUS

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*The interpretation of the symbols used in the tables throughout the Year Book will be found on p. vii of this volume.*

## PART I.—CONSTITUTION OF CANADA

The Canadian federal state, which today comprises ten provinces and two vast northern territories, had its beginning over one hundred years ago in the enactment (Mar. 29, 1867) by the British Parliament of the British North America Act, 1867. Fashioned largely out of the Seventy-two Resolutions drafted at Quebec (1864) by the Fathers of Confederation, the British North America Act, 1867 provided for the federal union of the three British North American provinces (Canada, New Brunswick and Nova Scotia) in one Dominion under the name of "Canada".

Although the new nation that came into being on July 1, 1867 was a federation comprised of four provinces (namely, Ontario, Quebec, New Brunswick and Nova Scotia) Sect.

\* Except where otherwise indicated, the data in this Chapter have been brought up to the date of June 30, 1971. Any important changes that may occur between that date and the date of going to press of the volume will be carried in Appendix I.

146 of the Act provided for the admission into the Union of the Crown colonies of Prince Edward Island and Newfoundland on the Atlantic and the united (1866) island and mainland colony of British Columbia on the Pacific, and also of the vast expanse of Hudson's Bay Company territory in the North West known as "Rupert's Land and the North-Western Territory". Following the negotiation of an agreement on terms comprising the Company's surrender of its authority and territories to the Crown (which was to transfer them at once to Canada) and the retention of one twentieth of the land of the fertile belt (the southern territories) with designated blocks of land around its trading posts and a Canadian cash payment of £300,000, the new nation of Canada was ready to expand westward with considerable momentum across the Continent to the Pacific.

The acquisition by Canada of Rupert's Land and the North-Western Territory enabled the Red River settlement, after a few months of disturbance, to receive limited provincial establishment under the name of "Manitoba" in 1870; provided the Federal Government with the public lands needed to help subsidize a transcontinental railway linking the Pacific with the Canadian East, thereby fulfilling the pledge to British Columbia to begin the Canadian Pacific Railway within two years and to complete it within ten years of the date of union, July 20, 1871; and laid, through the provision of millions of acres of public lands, the land and economic bases for the Federal Government's adoption of a free-homestead policy for the Canadian prairies that, in conjunction with the completion of the Canadian Pacific Railway and the launching of other railway lines, brought wave after wave of settlers into the Northwest Territories in such numbers as to justify the creation of the two Provinces of Saskatchewan and Alberta in 1905 out of the portion of the Northwest Territories south of the 60th parallel of north latitude. Although provision for their entry was included in the British North America Act, 1867, the Province of Prince Edward Island held back from the Union until 1873 and Newfoundland became Canada's tenth province on Mar. 31, 1949.

The Constitution of Canada, which had a corporate beginning in 1867, combines, in a set of rules determining the creation and operation of the machinery or institutions of government, the Cabinet system of responsible government (based on an inheritance from Britain) with a Canadian adaptation of federalism (as then practised in the United States for eighty years). A written document, the British North America Act of 1867, contains a substantial portion of Canada's Constitution and this Act, with its various amendments,\* is popularly held to be the Canadian Constitution. There is, however, another and perhaps more important part which appears, through the evolutionary processes of historical growth, in various guises including well-established usages and conventions found in the unwritten provisions of the Constitution.

Thus, the British North America Act is not a comprehensive constitutional document presenting an exhaustive statement of fundamental laws and rules by which Canada is governed. The Constitution of Canada in its broadest sense includes other British statutes (such as the Statute of Westminster, 1931) and Orders in Council (notably those admitting various provinces and territories to the federation), Statutes of the Parliament of Canada relating to such matters as the succession to the Throne, the Royal Style and Titles, the Governor General, the Senate, the House of Commons, the creation of courts, the establishment of government departments, the franchise, elections, and also statutes of provincial legislatures relating to provincial constitutional institutions and government matters. Federal and provincial Orders in Council, legally authorized by their respective statutes, provide further constitutional material as do the decisions of the courts which interpret the British North America Act and all ordinary statutes and indeed possess the power to set aside any laws which they hold to be *ultra vires* or beyond the jurisdiction of the enacting legislative bodies, whether federal or provincial. Moreover, the Canadian Constitution comprises, in addition to the statutory law and its judicial interpretation, substantial sections of the common law, unwritten constitutional usages and conventions and principles of democratic government which were transplanted from Britain over two

\* See *A Consolidation of The British North America Acts 1867 to 1965*, consolidated by Elmer A. Driedger as of Jan. 1, 1967. Information Canada, Ottawa. 75 cents (Catalogue No. YX1-167).



hundred years ago and since then have been thriving and evolving in the Canadian environment. For example, the Cabinet system of responsible government (see p. 87) and its functioning through close identification of the executive and the legislative powers (that is, of the Cabinet and the House of Commons) is not mentioned in the British North America Act but derives from an unwritten convention of the Constitution.

Although the essential principles of Cabinet government are based in custom or constitutional usage, the federal structure of Canadian government rests on the explicit written provisions of the British North America Act. Apart from the creation of the federal union, the dominant feature of the Act and indeed of the Canadian federation was the distribution of powers between the central or federal government on the one hand and the component provincial governments on the other. In brief, the primary purpose was to grant to the Parliament of Canada legislative jurisdiction over all subjects of general or common interest, while giving to the provincial legislatures jurisdiction over all matters of local or particular interest (see p. 94 and p. 112).

Unlike the written constitutions of many nations, the British North America Act lacks comprehensive "bill of rights" clauses, although it does accord specific constitutional protection to the use of the English and French languages (clause 133) and special safeguards with respect to sectarian or denominational schools. Such vital rights as freedom of speech, freedom of assembly, freedom of religion, freedom of the press, trial by jury and similar liberties enjoyed by the individual citizen are not recorded in the British North America Act but rather depend on the statute law and the common law inheritance. Security of these rights was confirmed by the passage of a Canadian Bill of Rights—An Act for the Recognition and Protection of Human Rights and Fundamental Freedoms (SC 1960, c.44), assented to Aug. 10, 1960. (See also Chapter IX, Sect. 1 on Canadian Criminal Law and Procedure.)

As mentioned above, the *right to use* either the English or the French language in the House of Commons, the Senate or the federal courts is constitutionally guaranteed by Sect. 133 of the British North America Act. The *use* of the English and French languages in the administration of the Government of Canada is dealt with in the Official Languages Act (RSC 1970, c. 0-2). That Act provides that government notices to the public, certain orders and regulations, and final decisions of federal courts are to be made or issued in both languages and that, in the National Capital Region and in federal bilingual districts, government services are to be available in both languages. The Commissioner of Official Languages for Canada is responsible for ensuring that the Act is complied with.

**Amendment of the Constitution.**—No provision was made in the British North America Act of 1867 for amendment thereof by any legislative authority in Canada but both the Parliament of Canada and the provincial legislatures were given legislative jurisdiction with respect to some matters relating to government. Thus, for example, the Parliament of Canada was given jurisdiction with respect to the establishment of electoral districts and election laws and the privileges and immunities of Members of the House of Commons and the Senate, and each provincial legislature was empowered to amend the constitution of the province except as regards the office of Lieutenant-Governor. By an amendment to the British North America Act passed in 1949, the authority of the Parliament of Canada to legislate with respect to constitutional matters was considerably enlarged and it may now amend the Constitution of Canada except as regards the legislative authority of the provinces, the rights and privileges of provincial legislatures or governments, schools, the use of the English or the French language, and the duration of the House of Commons other than in time of real or apprehended war, invasion or insurrection.

The question of devising amendment procedure within Canada which satisfies the need to safeguard or entrench such basic provincial and minority rights as are noted immediately above and yet possesses sufficient flexibility to ensure that the Constitution can be altered to meet changing circumstances is one that still engages the attention of the federal and provincial governments and legislatures. An outline of the constitutional

background to the problem, an annotated list of the fourteen occasions since 1867 when amendments to the British North America Act were made by the United Kingdom Parliament, a concise review of the prolonged search for a satisfactory amending procedure in Canada—the subject of repeated consideration in the Parliament of Canada and in a series of formal federal-provincial conferences and meetings in the years 1927, 1935-36, 1950, 1960-61 and 1964—and, more specifically, the text of a draft Bill “to provide for the amendment in Canada of the Constitution of Canada” (accompanied by explanatory notes relating thereto) which embodies the amending procedure or formula unanimously recommended by the Conference of Attorneys-General and unanimously accepted by the Conference of the Prime Minister and the Premiers (October 1964) are all made available in an official publication entitled *The Amendment of the Constitution of Canada*, authorized by the Minister of Justice, February 1965.\* However, one of the provinces subsequently withdrew its approval of the formula and, as a result, it was never adopted.

Constitutional discussions were renewed in earnest in February 1968. A committee of officials was established to aid the conference in its study of various constitutional questions. Each of the provincial governments with one exception and the Federal Government submitted a set of propositions which outlined their proposals for a new constitution. The Federal Government made its position public in two publications—*Federalism for the Future*,† which outlines in general terms the position of the Federal Government, and *The Constitution and the People of Canada*,‡ which explains in detail the propositions put forward by the Federal Government.

Between February 1968 and June 1971, eight federal-provincial conferences were held on the constitution. The discussions culminated in the drafting of the Canadian Constitutional Charter 1971, which set out specific constitutional reforms including a revised amendment procedure. The Charter was considered at the Constitutional Conference in Victoria, B.C., in June 1971 but as yet (September 1971) has not been accepted by all governments.

**Treaty-Making Powers.**§—The Federal Government has exclusive responsibility for the conduct of external affairs as a matter of national policy affecting all Canadians. The policy of the Federal Government in discharging this responsibility is to seek to promote the interest of the entire country and of all Canadians of the various provinces within the over-all framework of the national policy.

In respect of matters of specific concern to the provinces of Canada, it is the policy of the Canadian Government, in a spirit of co-operative federalism, to do its utmost to assist the provinces in achieving the particular aspirations and goals that they wish to attain. The attitude of the Federal Government in this respect was illustrated by the “entente” signed by representatives of Quebec and France in the field of education in February 1965. The Quebec and federal authorities co-operated actively in a procedure that enabled the Province of Quebec, within the framework of the Constitution and the national policy, to participate in international arrangements in a field of particular interest to that province.

Thus, under existing procedures, the position is that, once it is determined that what a province wishes to achieve through agreements in the field of education or in other fields of provincial jurisdiction falls within the framework of Canadian foreign policy, the provinces may discuss detailed arrangements directly with the competent authorities of the country concerned. When a formal international agreement is to be concluded, however, the federal powers relating to the signature of treaties and the conduct of over-all foreign policy must necessarily come into operation.

\* Available from Information Canada, Ottawa. \$2 (Catalogue No. J2-1665).

† Available from Information Canada, Ottawa. \$.75 (Catalogue No. CP22-768).

‡ Available from Information Canada, Ottawa. \$1 (Catalogue No. CP32-9-1969).

§ Extracted from “The Provinces and Treaty-Making Powers”, Appendix to *Votes and Proceedings of the House of Commons of Canada*, No. 8. Apr. 26, 1965.

The approach of the Canadian Government to the question of Canadian representation in international organizations of a social, cultural or humanitarian character reflects the same constructive spirit. It recognizes the desirability of ensuring that the Canadian representation in such organizations and conferences reflects in a fair and balanced way provincial and other interests in these subjects.

**1.—Provinces and Territories of Canada, Dates of Admission to Confederation, Legislative Processes by which Admission was Effected, Present Area and Seat of Government**

Province, Territory or District	Date of Admission or Creation	Legislative Process	Present Area (sq. miles)	Seat of Provincial or Territorial Government
Ontario <sup>1</sup> .....	July 1, 1867	Act of Imperial Parliament—The British	412,582	Toronto
Quebec <sup>2</sup> .....	July 1, 1867	North America Act, 1867 (Br. Stat.	594,860	Quebec
Nova Scotia.....	July 1, 1867	1867, c. 3) and Imperial Order in	21,425	Halifax
New Brunswick.....	July 1, 1867	Council, May 22, 1867.	28,354	Fredericton
Manitoba <sup>3</sup> .....	July 15, 1870	Manitoba Act, 1870 (SC 1870, c. 3) and		
		Imperial Order in Council, June 23, 1870.	251,000	Winnipeg
British Columbia.....	July 20, 1871	Imperial Order in Council, May 16, 1871..	366,255	Victoria
Prince Edward Island.....	July 1, 1873	Imperial Order in Council, June 26, 1873..	2,184	Charlotte- town
Saskatchewan <sup>4</sup> .....	Sept. 1, 1905	Saskatchewan Act, 1905 (SC 1905, c. 42) ..	251,700	Regina
Alberta <sup>4</sup> .....	Sept. 1, 1905	Alberta Act 1905 (SC 1905, c. 3).....	255,285	Edmonton
Newfoundland.....	Mar. 31, 1949	The British North America Act, 1949 (Br. Stat. 1949, c. 22) ..	156,185	St. John's
Northwest Territories <sup>5</sup> ...	July 15, 1870	Act of Imperial Parliament—Rupert's Land Act, 1868 (Br. Stat. 1868, c. 105) and Imperial Order in Council, June 23, 1870 ..	1,304,903	
Mackenzie <sup>6</sup> .....	Jan. 1, 1920		527,490	
Keewatin <sup>6</sup> .....	Jan. 1, 1920	Order in Council, Mar. 16, 1918.....	228,180	Yellowknife
Franklin <sup>6</sup> .....	Jan. 1, 1920		549,853	
Yukon Territory <sup>7</sup> .....	June 13, 1898	Yukon Territory Act, 1898 (SC 1898, c. 6)	207,076	Whitehorse
<b>Canada.....</b>			<b>3,851,809</b>	

<sup>1</sup> The area of Ontario was extended by the Ontario Boundaries Extension Act, 1912 (SC 1912, c. 40).

<sup>2</sup> Extended by Quebec Boundaries Extension Act, 1912 (SC 1912, c. 45) and diminished Mar. 1, 1927 in consequence of the Award of the Judicial Committee of the British Privy Council whereby approximately 112,000 sq. miles of territory (formerly considered as part of Quebec) was assigned to Newfoundland.

<sup>3</sup> Extended by the Extension of Boundaries Act of Manitoba, 1881 and the Manitoba Boundaries Extension Act, 1912 (SC 1912, c. 32).

<sup>4</sup> Saskatchewan and Alberta created as provinces in 1905 from the area formerly comprised in the provisional districts of Assiniboia, Athabaska, Alberta and Saskatchewan established May 17, 1882 by minute of Canadian Privy Council concurred in by Dominion Parliament and Order in Council, Oct. 2, 1895.

<sup>5</sup> By an Imperial Order in Council passed on June 23, 1870 pursuant to the Rupert's Land Act, 1868 (Br. Stat. 1868, c. 105), the former territories of the Hudson's Bay Company known as Rupert's Land and the North-Western Territory were transferred to Canada effective July 15, 1870. These territories were designated as the North-West Territories by the Act of SC 1869, c. 3, and as the Northwest Territories by RSC 1906, c. 62. By Imperial Order in Council of July 31, 1880 (effective Sept. 1, 1880), all British territories and possessions in North America not already included within Canada and all islands adjacent thereto (with the exception of the Colony of Newfoundland and its dependencies) were annexed to Canada and these additional territories were formally included in the North-West Territories by SC 1905, c. 27. The Province of Manitoba was formed out of a portion of the territories by the Manitoba Act, 1870 (SC 1870, c. 3) and a further portion was added to Manitoba in 1881 by SC 1881, c. 14. The Provinces of Alberta and Saskatchewan were formed out of portions of the territories in 1905 and in 1912 other portions were added to Manitoba, Ontario and Quebec.

<sup>6</sup> By SC 1876, c. 21, a separate district to be known as the District of Keewatin was established and provision was made for the local government thereof. The Act was expressed to come into force by proclamation. It provided that portions of the District might be re-annexed to the North-West Territories by proclamation; in 1886 a portion of the District of Keewatin was re-annexed and in 1905 the entire Keewatin District was re-annexed. The Act of 1876 was never proclaimed. By Order in Council of May 8, 1882 the provisional districts of Assiniboia, Saskatchewan, Alberta and Athabaska were created for the convenience of settlers and for postal purposes. By Order in Council of Oct. 2, 1895 the further provisional districts of Ungava, Franklin, Mackenzie and Yukon were created. The boundaries of these provisional districts were re-defined by Order in Council of Dec. 18, 1897. Subsequently the Yukon Territory was formed, the Provinces of Alberta and Saskatchewan were created and other portions of the territories were annexed to Quebec, Ontario and Manitoba. By Order in Council dated Mar. 16, 1918 (effective Jan. 1, 1920) the remaining portions of the Northwest Territories were divided into three provisional districts known as Mackenzie, Keewatin and Franklin.

<sup>7</sup> The provisional district of Yukon established in 1895 was created a judicial district of the North-West Territories by proclamation issued pursuant to Sect. 51 of the North-West Territories Act (RSC 1886, c. 50) on Aug. 16, 1897 and, by the Yukon Territory Act (SC 1898, c. 6), was declared to be a separate Territory.



## PART II.—MACHINERY OF GOVERNMENT

### Section 1.—Federal Government\*

In any political system there are processes whereby people express their demands to the government; whereby priorities are established among those demands and policies formulated for their implementation; and, finally, whereby the policies are implemented. The institutions, both governmental and non-governmental, through which these processes are carried on vary from country to country and tend to evolve over time, so that in any given country the roles of the institutions in such processes also change over time. This Section describes the institutions of the Government of Canada and their current roles in the fundamental processes of the Canadian political system.

In most countries, the legal framework within which political processes take place is provided through a constitution. The written Constitution of Canada is embodied in the British North America Acts (pp. 75-78). The first of these Acts, passed by the British Parliament in 1867, not only established the institutions through which legislative, executive and judicial powers are exercised in Canada but also established a federal form of government. A central government—the Federal Government—has legislative jurisdiction primarily over matters of national concern and over those matters not otherwise assigned to the provinces. The ten provincial governments are assigned specific areas of legislative jurisdiction, including municipal institutions.

In Canada, there is a fusion of the executive and legislative powers as in Great Britain, but unlike the United States system of separation of such powers. The formal executive power in Canada is vested in The Queen, whose authority is delegated to the Governor General, her representative. The legislative power is vested in the Parliament of Canada which consists of The Queen, an appointive "Upper House" called the Senate and a "Lower House" called the House of Commons, elected by universal adult suffrage. The independence of the judiciary is safeguarded through the constitutional provision that superior court judges are appointed by the Governor in Council and that they hold office during good behaviour and are removable only by the Governor General on address of the Senate and the House of Commons. In other words, judges cannot be removed unless Parliament, the Cabinet and the Governor General agree.

In the Canadian system of government, where the executive is part of Parliament, democratic principles could not be adhered to without the constitutional convention that the Government is responsible to the House of Commons. When the Government loses the confidence of the House of Commons, it must resign or the Prime Minister must request the Governor General to dissolve Parliament and call a general election. Although there are conventions that help in deciding when the Government has lost the confidence of the House, all doubt is removed when the Government is defeated on a motion on which it had explicitly staked its life or when a motion of non-confidence in the Government is passed. If the Government resigns, the Governor General can call on the Leader of the Opposition (who is usually the leader of the political party that has the second largest number of seats in the House of Commons) to form a new Government. If a Government that has lost the confidence of the House of Commons and is granted a dissolution is defeated in the ensuing general election and if no clear majority is elected, the Government has two choices—it can remain in office and seek a vote of confidence of the House of Commons when it meets or it can resign at once. If it resigns, the Governor General will normally ask the leader of another party, usually the one that has won the most seats, to form a new Government. The primary responsibility of the Governor General in either circumstance is to provide the nation with a government capable of carrying on with the support of the House of Commons.

The Prime Minister and his Cabinet, who with one or two exceptions are members of the House of Commons, are, formally speaking, the Queen's advisers. In fact, there are

\* Approved by the Privy Council Office.

virtually no significant actions that can be taken by The Queen, or her representative in Canada, the Governor General, without the advice of the Cabinet. The Prime Minister and his Cabinet determine executive policies and are responsible for them to the House of Commons. The Queen and her representative, the Governor General, have the traditional rights to be consulted, to encourage and to warn the Government.

The demands of Canadian citizens are directed primarily to Members of Parliament, directly to Cabinet Ministers or indirectly to Cabinet Ministers through the Public Service. These demands may originate from individuals, political parties or pressure groups. Alternatively, Members of Parliament, Cabinet Ministers and public servants may take the initiative in suggesting the adoption of policies and programs in the public interest. Although the roles performed by Parliament, the Public Service and the Cabinet cannot be defined with absolute precision, the following stylized description deals with the most obvious and primary roles of each in the Canadian political system.

The determination of public policy rests with the Cabinet but begins generally with the formulation of policy by the individual Ministers. This means, usually, that the public servants under the direction of the Ministers in fact formulate policy proposals which are then submitted, if he agrees, by the Minister concerned to his colleagues in the Cabinet. The Cabinet chooses among the policies submitted and determines which it wishes to implement. The Cabinet may itself formulate policies but, more often, it simply decides from among the alternatives submitted. The establishment of a Cabinet committee system (see p. 89) that operates on a systematic basis and, more especially, the establishment of the Cabinet Committee on Priorities and Planning represent attempts to enhance the capacity of Cabinet in its primary role of policy determination and priority setting.

In conformity with the concept of the rule of law, all executive acts must be authorized by law, and laws are enacted by Parliament. Executive acts may be sanctioned directly by a statute which specifies how a policy is to be implemented, or indirectly by a statute which authorizes the Governor in Council to undertake specific acts. Much of the activity of the Public Service is authorized through the yearly enactment of Appropriation Acts authorizing the expenditure of public funds for specific purposes. As far as the operations of the Government are concerned, Parliament is concerned primarily with the discussion and authorization of policy submitted for its approval by the Government (Ministers). The approval of these policies is accomplished mainly through the enactment of legislation. In an attempt to enhance the capacity of the House of Commons to perform this role efficiently, the Government introduced numerous changes in the rules of procedure of the House, which were adopted in February 1970, and are included in the Standing Orders of the House of Commons.

The most significant feature of the above processes is that the Government, or Cabinet Ministers, have seats in Parliament and thus share in the exercise of the legislative power. In fact, the majority of legislation enacted by Parliament is submitted by the Government. (The Constitution provides that all financial measures *must* be introduced by the Government.)

It is the role of the judiciary to apply the laws enacted by Parliament. In the Canadian system of government, Parliament is supreme. This means, among other things, that the judiciary must apply the law as Parliament has enacted it and cannot declare laws to be unconstitutional if they are within the legislative jurisdiction of Parliament or of the legislature that enacted them.

The administration of legislation and of the Government's policies is carried out through a Public Service comprising employees organized (1971) in 25 departments of Government and 67 special boards, commissions and Crown corporations or other agencies. Legislation and tradition have combined to develop a Public Service that is non-partisan, the tenure of whose employees is not altered when changes in the Government take place. The only direct relationship between public servants and Parliament is when they are called to appear as witnesses before parliamentary committees. On these occasions, public servants do not, by convention, express opinions on public policy but usually appear as experts and

to explain existing policy. The public servants who head agencies such as the Public Service Commission, the Office of the Auditor General, the Office of the Language Commission, the Library of Parliament or the Office of the Chief Electoral Officer, which have a special relationship to Parliament, and who are not subject to direction by the Government on matters of policy, may appear before Parliamentary Committees to explain the policies of their agencies.

The growth in number, variety and complexity of demands placed on the Government requires it not only to adjust its policies in response to these demands but, with increasing frequency, to make significant changes in the organization of the Public Service so that the required policies can be properly implemented. Major reorganization of the Public Service has been authorized by the passage of Government Organization Acts in 1966, 1969 and 1970. The latter are described briefly at p. 139.

### Subsection 1.—The Executive

**The Crown.**—The British North America Act of 1867 (Sect. 9) provides that “the Executive Government and authority of and over Canada is... vested in the Queen”. The functions of the Crown (that is, the formal executive represented by The Queen), which are substantially the same as those of the Crown in relation to the British Government, are discharged by the Governor General.

**The Queen.**—The Queen seldom personally discharges the functions of the Crown in respect of Canada except on such occasions as the periodic appointment of the Governor General which is done on the recommendation of the Prime Minister of Canada. On the occasion of a Royal visit, The Queen may participate in those ceremonies that are normally carried out in her name by the Governor General, such as the opening and dissolution of Parliament, the assent to Bills passed by the House of Commons and the Senate, and the granting of a general amnesty.

The Queen is not only Queen of Canada but of several other countries in the Commonwealth. Her Majesty's title for Canada was approved by Parliament and established by a Royal proclamation on May 28, 1953. The title of The Queen, as far as Canada is concerned, now is:—

Elizabeth the Second, by the Grace of God of the United Kingdom, Canada and Her other Realms and Territories Queen, Head of the Commonwealth, Defender of the Faith.

### 1.—Sovereigns of Canada since Confederation, 1867

Name	Year of Birth	Date of Accession
Victoria.....	1819	June 20, 1837
Edward VII.....	1841	Jan. 22, 1901
George V.....	1865	May 6, 1910
Edward VIII.....	1894	Jan. 20, 1936
George VI.....	1895	Dec. 11, 1936
Elizabeth II.....	1926	Feb. 6, 1952

**The Governor General.**—The Governor General is the representative of the Crown in Canada. The present incumbent, His Excellency The Right Honourable Roland Michener, C.C., C.D., is the twentieth Governor General since Confederation and was appointed by Her Majesty Queen Elizabeth II on Mar. 29, 1967, on the recommendation of the Prime Minister of Canada. Constitutionally, The Queen of Canada is the Canadian Head of State but the Governor General fulfils her role in this regard on her behalf. The Letters Patent revised and re-issued under the Great Seal of Canada on Oct. 1, 1947, authorized the Governor General “to exercise on the advice of his Canadian ministers, all Her Majesty's powers and authorities in respect of Canada”.



One of the most important responsibilities of the Governor General is to ensure that the country always has a Government. If the office of the Prime Minister becomes vacant because of death, resignation or defeat of the Government in the House of Commons (see p. 86), it is the responsibility of the Governor General to see that the office of the Prime Minister is filled and that a new Government is formed.

As the representative of The Queen—one of the three elements of the Canadian Parliament, the others being the Senate and the House of Commons—the Governor General summons, prorogues and dissolves Parliament on the advice of the Prime Minister. He signs Orders in Council, commissions and many other state documents, and gives his assent to Bills that have been passed in both Houses of Parliament and which thereby become Acts of Parliament with the force of law (unless Parliament prescribes specifically otherwise). Like The Queen, he is bound in virtually all cases to carry out these duties in accordance with the advice of his responsible Ministers. Should he not wish to accept the advice of his responsible Ministers, and should they maintain that advice, his only alternative is to replace the existing Government with a new Government. This alternative could be exercised only if, at the same time, the principle of responsible government could be maintained. This means that the Governor General's discretion in choosing another Government is strictly limited to a situation in which a person other than the existing Prime Minister could command the confidence of the House of Commons.

In Canada, as in other constitutional monarchies, there is a clear division between the executive and representational functions of state. The Prime Minister, as the elected political leader of the country, is the chief executive and head of the Government. The Governor General, on the other hand, is not involved in any way in party politics or political affiliation and he is, therefore, in a position to represent Canada as a whole and to speak for Canadians on ceremonial and state occasions. In effect, the Governor General has become an important symbol of the unity of Canada and the continuity of its institutions and national life.



*Canada's Governor General, The Right Honourable Roland Michener, who is also Chief Scout, has the pleasant task of presenting Gallantry Crosses to Boy Scouts who have performed acts of bravery in which their own lives were in danger or for other meritorious conduct.*

The Governor General is Canada's host to visiting Heads of State and other distinguished visitors from abroad. He extends hospitality of many forms to many Canadians and lends his patronage in support of a great variety of activities throughout the country.

The Governor General receives the Letters of Credence of Ambassadors appointed to Canada, receives Commonwealth High Commissioners on appointment and holds investitures for the conferring of honours and awards. He is the Chancellor and Principal Companion of the Order of Canada, created in the Centennial Year as a means of recognizing distinguished public service and outstanding achievement or gallantry.

## 2.—Governors General of Canada since Confederation, 1867

Name	Date of Appointment	Date of Assumption of Office
THE VISCOUNT MONCK OF BALLYTRAMMON.	June 1, 1867	July 1, 1867
THE BARON LISGAR OF LISGAR AND BAILIEBOROUGH.	Dec. 29, 1868	Feb. 2, 1869
THE EARL OF DUFFERIN.	May 22, 1872	June 25, 1872
THE MARQUIS OF LORNE.	Oct. 5, 1878	Nov. 25, 1878
THE MARQUIS OF LANSDOWNE.	Aug. 18, 1883	Oct. 23, 1883
THE BARON STANLEY OF PRESTON.	May 1, 1888	June 11, 1888
THE EARL OF ABERDEEN.	May 22, 1893	Sept. 18, 1893
THE EARL OF MINTO.	July 30, 1898	Nov. 12, 1898
THE EARL GREY.	Sept. 26, 1904	Dec. 10, 1904
FIELD MARSHAL H. R. H. THE DUKE OF CONNAUGHT.	Mar. 21, 1911	Oct. 13, 1911
THE DUKE OF DEVONSHIRE.	Aug. 19, 1916	Nov. 11, 1916
GENERAL THE BARON BYNG OF VIMY.	Aug. 2, 1921	Aug. 11, 1921
THE VISCOUNT WILLINGTON OF RATTON.	Aug. 5, 1926	Oct. 2, 1926
THE EARL OF BESSBOROUGH.	Feb. 9, 1931	Apr. 4, 1931
THE BARON TWEEDSMUIR OF ELSFIELD.	Aug. 10, 1935	Nov. 2, 1935
MAJOR GENERAL THE EARL OF ATHLONE.	Apr. 3, 1940	June 21, 1940
FIELD MARSHAL THE VISCOUNT ALEXANDER OF TUNIS.	Mar. 21, 1946	Apr. 12, 1946
THE RIGHT HONOURABLE VINCENT MASSEY.	Jan. 24, 1952	Feb. 28, 1952
GENERAL THE RIGHT HONOURABLE GEORGES P. VANIER.	Aug. 1, 1959	Sept. 15, 1959
THE RIGHT HONOURABLE ROLAND MICHENER.	Mar. 29, 1967	Apr. 17, 1967

**The Privy Council.**—The British North America Act of 1867 (Sect. 11) provides for "a council to aid and advise in the Government of Canada, to be styled the Queen's Privy Council for Canada...". The Council that in fact advises the Queen's representative, the Governor General, is the Committee of the Privy Council the membership of which is identical with that of the Cabinet.

Membership in the Privy Council is for life. As of Aug. 12, 1971, there were 131 members, including the 28 Cabinet Ministers of the Government of the Day, former Cabinet Ministers, various members of the Royal Family, past and present Commonwealth Prime Ministers, Premiers of provinces, former Speakers of the Senate and the House of Commons of Canada and a few distinguished civilians. A member of the Privy Council of Canada is styled "Honourable" and may use the initials "P.C." after his name. A member of the Privy Council of the United Kingdom is styled "Right Honourable". The Governor General, the Chief Justice of Canada and the Prime Minister of Canada automatically assume the title "Right Honourable" on assumption of office.

The Privy Council as a whole has met on only a few ceremonial occasions but, as already stated, its constitutional responsibilities to advise the Crown on matters respecting the Government of Canada are performed exclusively by the Committee of the Privy Council (the Cabinet). The legal instruments through which executive authority is exercised are called Orders in Council. The procedure is for the Committee of the Privy Council to make a submission to the Governor General for his approval which he is obliged to give in almost all circumstances; with this approval, the submission becomes an Order in Council. Meetings of the Committee of the Privy Council or a sub-committee of this Committee are held without formal ceremony.

### 3.—Members of the Queen's Privy Council for Canada According to Seniority Therein, as at Aug. 12, 1971

NOTE.—In this list the prefix "Rt. Hon." indicates membership in the British Privy Council, or is in accordance with the Table of Titles.

Member <sup>1</sup>	Date When Sworn In	Member <sup>1</sup>	Date When Sworn In
Hon. THOMAS ALEXANDER CRERAR.....	Oct. 12, 1917	Hon. AZELLUS DENIS.....	Apr. 22, 1963
Hon. HENRY HERBERT STEVENS.....	Sept. 21, 1921	Hon. GEORGE JAMES McILRAITH.....	Apr. 22, 1963
Hon. EDWARD JAMES McMURRAY.....	Nov. 14, 1923	Hon. WILLIAM MOORE BENEDICKSON.....	Apr. 22, 1963
H.R.H. THE DUKE OF WINDSOR.....	Aug. 2, 1927	Hon. ARTHUR LAING <sup>2</sup> .....	Apr. 22, 1963
Hon. THOMAS GEROW MURPHY.....	Aug. 7, 1930	Hon. MAURICE LAMONTAGNE.....	Apr. 22, 1963
Hon. WILLIAM EARL ROWE.....	Aug. 30, 1935	Hon. LUCIEN CARDIN.....	Apr. 22, 1963
Hon. COLIN WILLIAM GEORGE GIBSON.....	July 8, 1940	Hon. ALLAN JOSEPH MACEachen <sup>2</sup> .....	Apr. 22, 1963
Hon. JOSEPH THORARINN THORSON.....	June 11, 1941	Hon. JEAN-PAUL DESCHATELETS.....	Apr. 22, 1963
Rt. Hon. LOUIS STEPHEN ST. LAURENT.....	Dec. 10, 1941	Hon. HÉDARD ROBICHAUD.....	Apr. 22, 1963
Hon. JOSEPH ARTHUR JEAN.....	Apr. 18, 1945	Hon. JOHN WATSON MACNAUGHT.....	Apr. 22, 1963
Hon. LIONEL CHEVRIER.....	Apr. 18, 1945	Hon. ROGER TEILLET.....	Apr. 22, 1963
Hon. PAUL JOSEPH JAMES MARTIN <sup>2</sup> .....	Apr. 18, 1945	Hon. JUDY V. LAMARSH.....	Apr. 22, 1963
Hon. DOUGLAS CHARLES ABBOTT.....	Apr. 18, 1945	Hon. CHARLES MILLS DRURY <sup>2</sup> .....	Apr. 22, 1963
Hon. THOMAS VIEN.....	July 19, 1945	Hon. JOHN ROBERT NICHOLSON.....	Apr. 22, 1963
Hon. MILTON FOWLER GREGG.....	Sept. 2, 1947	Hon. HARRY HAYS.....	Apr. 22, 1963
Hon. ROBERT WELLINGTON MAYHEW.....	June 11, 1948	Hon. JOHN JOSEPH CONNOLLY.....	Feb. 3, 1964
Rt. Hon. LESTER BOWLES PEARSON.....	Sept. 10, 1948	Hon. MAURICE SAUVÉ.....	Feb. 3, 1964
Hon. STUART SINCLAIR GARSON.....	Nov. 15, 1948	Hon. YVON DUPUIS.....	Feb. 3, 1964
Hon. HUGUES LAPOINTE.....	Aug. 25, 1949	Hon. GEORGE STANLEY WHITE.....	June 25, 1964
Hon. GABRIEL-ÉDOUARD RINFRET.....	Aug. 25, 1949	Hon. MAJOR JAMES WILLIAM COLDWELL.....	June 25, 1964
Hon. WALTER EDWARD HARRIS.....	Jan. 18, 1950	Hon. EDGAR JOHN BENSON <sup>2</sup> .....	June 29, 1964
Hon. GEORGE PRUDHAM.....	Dec. 13, 1950	Hon. LÉO ALPHONSE JOSEPH CADIEUX.....	Feb. 15, 1965
Hon. JAMES SINCLAIR.....	Oct. 15, 1952	Hon. LAWRENCE T. PENNELL.....	July 7, 1965
Hon. WILLIAM ROSS MACDONALD.....	May 12, 1953	Hon. JEAN-LUC PÉPIN <sup>2</sup> .....	July 7, 1965
Hon. GEORGE ALEXANDER DREW.....	May 12, 1953	Hon. ALAN AYLESWORTH MACNAUGHTON.....	Oct. 25, 1965
Hon. JOHN WHITNEY PICKERSGILL.....	June 12, 1953	Hon. JEAN MARCHAND <sup>2</sup> .....	Dec. 18, 1965
Hon. JEAN LESAGE.....	Sept. 17, 1953	Hon. JOHN JAMES GREENE <sup>2</sup> .....	Dec. 18, 1965
Hon. GEORGE CARLYLE MARLER.....	July 1, 1954	Hon. JOSEPH JULIEN JEAN-PIERRE CÔTÉ <sup>2</sup> .....	Dec. 18, 1965
Hon. ROCH PINARD.....	July 1, 1954	Hon. JOHN NAPIER TURNER <sup>2</sup> .....	Dec. 18, 1965
Hon. PAUL THEODORE HELLYER.....	Apr. 26, 1957	Hon. MAURICE BOURGET.....	Feb. 22, 1966
Rt. Hon. JOHN GEORGE DIEFENBAKER.....	June 21, 1957	Rt. Hon. PIERRE ELLIOTT TRUDEAU <sup>2</sup> .....	Apr. 4, 1967
Hon. HOWARD CHARLES GREEN.....	June 21, 1957	Hon. JOSEPH-JACQUES-JEAN CHRÉTIEN <sup>2</sup> .....	Apr. 4, 1967
Hon. DONALD METHUEN FLEMING.....	June 21, 1957	Hon. PAULINE VANIER.....	Apr. 11, 1967
Hon. GEORGE HEES.....	June 21, 1957	Hon. JOHN PARMENTER ROBERTS.....	July 5, 1967
Hon. LÉON BALCER.....	June 21, 1957	Hon. LOUIS J. ROBICHAUD.....	July 5, 1967
Hon. GEORGE RANDOLPH PEARKES.....	June 21, 1957	Hon. DUFFEIN ROBLIN.....	July 5, 1967
Hon. GORDON CHURCHILL.....	June 21, 1957	Hon. WILLIAM ANDREW CECIL BENNETT.....	July 5, 1967
Hon. EDMUND DAVID FULTON.....	June 21, 1957	Hon. ALEXANDER B. CAMPBELL.....	July 5, 1967
Hon. DOUGLAS SCOTT HARKNESS.....	June 21, 1957	Hon. WILBERT ROSS THATCHER.....	July 5, 1967
Hon. ELLEN LOUKS FAIRCLOUGH.....	June 21, 1957	Hon. ERNEST CHARLES MANNING.....	July 5, 1967
Hon. JOHN ANGUS MACLEAN.....	June 21, 1957	Hon. JOSEPH ROBERT SMALLWOOD.....	July 5, 1967
Hon. MICHAEL STARR.....	June 21, 1957	Hon. ROBERT L. STANFIELD.....	July 7, 1967
Hon. WILLIAM McLEARN HAMILTON.....	June 21, 1957	Rt. Hon. JOHN ROBERT CARTWRIGHT.....	Sept. 4, 1967
Hon. JAMES MACKEERAS MACDONNELL.....	June 21, 1957	Hon. CHARLES RONALD McKAY GRANGER.....	Sept. 25, 1967
Hon. WILLIAM JOSEPH BROWNE.....	June 21, 1957	Hon. BRYCE STUART MACKASEY <sup>2</sup> .....	Feb. 9, 1968
Hon. JAY WALDO MONTEITH.....	Aug. 22, 1957	Hon. DONALD STOVEL MACDONALD <sup>2</sup> .....	Apr. 20, 1968
Hon. FRANCIS ALVIN GEORGE HAMILTON.....	Aug. 22, 1957	Hon. JOHN CARR MUNRO <sup>2</sup> .....	Apr. 20, 1968
H.R.H. THE PRINCE PHILIP, Duke of Edinburgh.....	Oct. 14, 1957	Hon. GÉRARD PEILETIER.....	Apr. 20, 1968
Hon. HENRI COURTEMANCHE.....	May 12, 1958	Hon. JACK DAVIS <sup>2</sup> .....	Apr. 26, 1968
Hon. DAVID JAMES WALKER.....	Aug. 20, 1959	Hon. HORACE ANDREW OLSON <sup>2</sup> .....	July 6, 1968
Hon. JOSEPH-PIERRE-ALBERT SÉVIGNY.....	Aug. 20, 1959	Hon. JEAN-EUDES DUBÉ <sup>2</sup> .....	July 6, 1968
Hon. HUGH JOHN FLEMING.....	Oct. 11, 1960	Hon. STANLEY RONALD BASFORD <sup>2</sup> .....	July 6, 1968
Hon. NOËL DORION.....	Oct. 11, 1960	Hon. DONALD CAMPBELL JAMIESON <sup>2</sup> .....	July 6, 1968
Hon. WALTER DINSDALE.....	Oct. 11, 1960	Hon. ERIC WILLIAM KIERANS.....	July 6, 1968
Hon. GEORGE ERNEST HALPENNY.....	Oct. 11, 1960	Hon. ROBERT KNIGHT ANDRAS <sup>2</sup> .....	July 6, 1968
Hon. WALTER MORLEY ASELTYNE.....	Dec. 28, 1961	Hon. JAMES ARMSTRONG RICHARDSON <sup>2</sup> .....	July 6, 1968
Hon. LESLIE MISCAMPBELL FROST.....	Dec. 28, 1961	Hon. OTTO EMIL LANG <sup>2</sup> .....	July 6, 1968
Hon. JACQUES FLYNN.....	Dec. 28, 1961	Hon. SYDNEY JOHN SMITH.....	Oct. 10, 1968
Hon. PAUL MARTINEAU.....	Aug. 9, 1962	Hon. HERBERT ESER GRAY <sup>2</sup> .....	Oct. 20, 1969
Hon. RICHARD ALBERT BELL.....	Aug. 9, 1962	Hon. ROBERT DOUGLAS GEORGE STANBURY <sup>2</sup> .....	Oct. 20, 1969
Rt. Hon. ROLAND MICHENER.....	Oct. 15, 1962	Rt. Hon. JOSEPH HONORÉ GÉRALD FAUTEUX.....	Mar. 23, 1970
Hon. MARCEL-JOSEPH-AIMÉ LAMBERT.....	Feb. 12, 1963	Hon. JEAN-PIERRE GOYER <sup>2</sup> .....	Dec. 22, 1970
Hon. THÉOGÈNE RICARD.....	Mar. 18, 1963	Hon. ALASTAIR WILLIAM GILLESPIE <sup>2</sup> .....	Aug. 11, 1971
Hon. FRANK CHARLES MCGEE.....	Mar. 18, 1963	Hon. MARTIN PATRICK O'CONNELL <sup>2</sup> .....	Aug. 11, 1971
Hon. MARTIAL ASSELIN.....	Mar. 18, 1963		
Hon. WALTER LOCKHART GORDON.....	Apr. 22, 1963		
Hon. MITCHELL WILLIAM SHARP <sup>2</sup> .....	Apr. 22, 1963		

<sup>1</sup> Members of Her Majesty's Privy Council for Canada take rank *inter se* according to the dates of their being sworn in.

<sup>2</sup> Ranks as a Member of the Cabinet.

<sup>3</sup> Ranks as the Prime Minister of Canada.



The office of the President of the Privy Council was originally occupied, more often than not, by the Prime Minister but from time to time, especially in recent years, it has been occupied by another Minister. On July 5, 1968, the Prime Minister explained that the incumbent of the office of President of the Privy Council would also be the Government Leader in the House of Commons, with the broad responsibility of directing the business of the House, including such matters as the supervision of the Government's replies to questions in the House and the parliamentary returns in general, and also a special responsibility on behalf of the Government of ensuring that Parliament, through its operations and organization of business, can effectively discharge its vital role in the Canadian political process under the increasing pressure of modern government.

#### 4.—Duration and Sessions of Parliaments, 1958-71

*Note.*—Similar information for the 1st to the 12th Parliaments, covering the period from Confederation to 1917, is given in the 1940 Year Book, p. 46; that for the 13th to 17th Parliaments in the 1945 edition, p. 53; for the 18th and 19th Parliaments in the 1957-58 edition, p. 46; and for the 20th to the 23rd Parliaments in the 1965 edition, p. 65.

Order of Parliament	Session	Date of Opening	Date of Prorogation	Days of Session	Sitting Days of House of Commons	Date of Election, Writs Returnable, Dissolution, and Length of Parliament <sup>1,2</sup>
24th Parliament.....	1st	May 12, 1958	Sept. 6, 1958	117	93	Mar. 31, 1958 <sup>3</sup> Apr. 30, 1958 <sup>4</sup> Apr. 19, 1962 <sup>5</sup> 3 y., 11 m., 20 d.
	2nd	Jan. 15, 1959	July 18, 1959	185	127	
	3rd	Jan. 14, 1960	Aug. 10, 1960	210	146	
	4th	Nov. 17, 1960	Sept. 28, 1961	316 <sup>6</sup>	174	
	5th	Jan. 18, 1962	Apr. 18, 1962	91	65	
25th Parliament.....	1st	Sept. 27, 1962	Feb. 5, 1963 <sup>7</sup>	131	72	June 18, 1962 <sup>3</sup> July 18, 1963 <sup>4</sup> Feb. 6, 1963 <sup>5</sup> 6 m., 20 d.
26th Parliament.....	1st	May 16, 1963	Dec. 21, 1963	220 <sup>8</sup>	117	Apr. 8, 1963 <sup>3</sup> May 8, 1964 <sup>4</sup> Sept. 8, 1965 <sup>5</sup> 2 y., 5 m., 1 d.
	2nd	Feb. 18, 1964	Apr. 3, 1965	411 <sup>9</sup>	248	
	3rd	Apr. 5, 1965	Sept. 8, 1965 <sup>10</sup>	157 <sup>11</sup>	53	
27th Parliament.....	1st	Jan. 18, 1966	May 8, 1967	476 <sup>12</sup>	250	Nov. 8, 1965 <sup>3</sup> Dec. 9, 1965 <sup>4</sup> Apr. 23, 1968 <sup>5</sup> 2 y., 5 m., 15 d.
	2nd	May 8, 1967	Apr. 23, 1968	352 <sup>13</sup>	155	
28th Parliament.....	1st	Sept. 12, 1968	Oct. 22, 1969	386 <sup>14</sup>	199 <sup>15</sup>	June 25, 1968 <sup>3</sup> July 25, 1968 <sup>4</sup>
	2nd	Oct. 23, 1969	Oct. 7, 1970	319 <sup>16</sup>	155 <sup>17</sup>	
	3rd	Oct. 8, 1970	...	...	...	

<sup>1</sup> The ordinary legal limit of duration for each Parliament is five years.

<sup>2</sup> Duration of Parliament in years,

months and days. The life of a Parliament is counted from the date of return of election writs to the date of dissolution, both days inclusive (BNA Act, Sect. 50).

<sup>3</sup> Date of general election.

<sup>4</sup> Writs returnable.

<sup>5</sup> Dissolution of Parliament.

<sup>6</sup> Includes long adjournment from July 13 to Sept. 7, 1961.

<sup>7</sup> Government

defeated in House of Commons on want of confidence motion. <sup>8</sup> Includes long adjournment from Aug. 2 to Sept. 30, 1963.

<sup>9</sup> Includes long adjournment from Dec. 18, 1964 to Feb. 16, 1965. <sup>10</sup> House adjourned on June 30 until Sept. 27 but dissolved on Sept. 8, 1965.

<sup>11</sup> Includes long adjournment from June 30 to Sept. 27, superseded by dissolution on Sept. 8, 1965. <sup>12</sup> Includes 18-day Christmas adjournment, 11-day Easter adjournment, and two long adjournments from July 14 to Aug. 29 and Sept. 9 to Oct. 5.

<sup>13</sup> Includes adjournment from July 7, 1967 to Sept. 25, 1967; Christmas adjournment from Dec. 21, 1967 to Jan. 22, 1968; and Easter adjournment from Mar. 27, 1968 to Apr. 23, 1968.

<sup>14</sup> Includes Christmas adjournment from Dec. 20, 1968 to Jan. 14, 1969; Easter adjournment from Apr. 2, 1969 to Apr. 14, 1969; and summer adjournment from July 25, 1969 to Oct. 22, 1969.

<sup>15</sup> Includes two days devoted to Committee work. <sup>16</sup> Includes Christmas adjournment from Dec. 19, 1969 to Jan. 12, 1970; Easter adjournment from Mar. 25, 1970 to Apr. 6, 1970; and summer adjournment from June 26, 1970 to Oct. 5, 1970.

<sup>17</sup> Includes one day devoted to Committee work.

**The Prime Minister.**—The Prime Minister is the leader of the political Party requested by the Governor General to form the Government, which almost always means that he is the leader of the Party with the strongest representation in the House of Commons. His position is one of exceptional authority, which stems in part from the success of the Party at an election and the role imputed to him for that success. The Prime Minister

chooses his Cabinet. When a member of his Cabinet resigns, the remainder of the Cabinet is undisturbed; when the Prime Minister vacates his office, this act normally carries with it the resignation of all those in the Cabinet.

A source of the authority of the Prime Minister lies in his prerogative to recommend the dissolution of Parliament. This prerogative, which in most circumstances permits him to precipitate an election, is a source of considerable power both in his dealings with his colleagues and with the opposition parties in the House of Commons.

Another source of the Prime Minister's authority derives from the appointments which he recommends. These include Privy Councillors, Cabinet Ministers, Lieutenant-Governors of the provinces, provincial administrators, Speaker of the Senate, Chief Justices of all courts, and Senators. The Prime Minister also recommends the appointment of a new Governor General to the Sovereign, although this normally follows consultation with his Cabinet.

The Prime Ministers since Confederation are listed in Table 5.

**5.—Prime Ministers since Confederation, 1867**

Ministry	Name	Length of Administration
1	Rt. Hon. Sir JOHN ALEXANDER MACDONALD.....	July 1, 1867 — Nov. 5, 1873
2	Hon. ALEXANDER MACKENZIE.....	Nov. 7, 1873 — Oct. 16, 1878
3	Rt. Hon. Sir JOHN ALEXANDER MACDONALD.....	Oct. 17, 1878 — June 6, 1891
4	Hon. Sir JOHN JOSEPH CALDWELL ABBOTT.....	June 16, 1891 — Nov. 24, 1892
5	Rt. Hon. Sir JOHN SPARROW DAVID THOMPSON.....	Dec. 5, 1892 — Dec. 12, 1894
6	Hon. Sir MACKENZIE BOWELL.....	Dec. 21, 1894 — Apr. 27, 1896
7	Rt. Hon. Sir CHARLES TUPPER.....	May 1, 1896 — July 8, 1896
8	Rt. Hon. Sir WILFRID LAURIER.....	July 11, 1896 — Oct. 6, 1911
9	Rt. Hon. Sir ROBERT LAIRD BORDEN.....	Oct. 10, 1911 — Oct. 12, 1917 (Conservative Administration)
10	Rt. Hon. Sir ROBERT LAIRD BORDEN.....	Oct. 12, 1917 — July 10, 1920 (Unionist Administration)
11	Rt. Hon. ARTHUR MEIGHEN.....	July 10, 1920 — Dec. 29, 1921 (Unionist—"National Liberal and Conservative Party")
12	Rt. Hon. WILLIAM LYON MACKENZIE KING.....	Dec. 29, 1921 — June 28, 1926
13	Rt. Hon. ARTHUR MEIGHEN.....	June 29, 1926 — Sept. 25, 1926
14	Rt. Hon. WILLIAM LYON MACKENZIE KING.....	Sept. 25, 1926 — Aug. 6, 1930
15	Rt. Hon. RICHARD BEDFORD BENNETT.....	Aug. 7, 1930 — Oct. 23, 1935
16	Rt. Hon. WILLIAM LYON MACKENZIE KING.....	Oct. 23, 1935 — Nov. 15, 1948
17	Rt. Hon. LOUIS STEPHEN ST. LAURENT.....	Nov. 15, 1948 — June 21, 1957
18	Rt. Hon. JOHN GEORGE Diefenbaker.....	June 21, 1957 — Apr. 22, 1963
19	Rt. Hon. LESTER BOWLES PEARSON.....	Apr. 22, 1963 — Apr. 20, 1968
20	Rt. Hon. PIERRE ELLIOTT TRUDEAU.....	Apr. 20, 1968 — ...

**The Cabinet.**—As stated on p. 80, the Cabinet's primary function in the Canadian political system is to determine priorities among the demands expressed by the people and to determine the policies to meet those demands. The Cabinet is a committee of Ministers chosen by the Prime Minister, generally from among members of the House of Commons, although there have usually been one or two Ministers chosen from the Senate including the Leader of the Government in the Senate. It is unusual for a Senator to head a department of government because the Constitution provides that measures for appropriating public funds or imposing taxes must originate in the House of Commons and, as a result, almost all important legislation is initiated in the House of Commons. Also, another Minister in the House of Commons would have to speak on behalf of a Senator who headed a department, in respect of its affairs.

Members of the Twentieth Ministry as at Oct. 20, 1971, are given in Table 6. Salaries, allowances and pensions of Cabinet Ministers are given at pp. 106-107.

**6.—Members of the Twentieth Ministry, as at Oct. 20, 1971<sup>1</sup>**

(According to precedence of Ministers)

NOTE.—A complete list of the members of Federal Ministries from Confederation to 1913 appears in the 1912 Year Book, pp. 422-429. Later Ministries will be found in subsequent editions.

Office	Occupant	Date of First Appointment	Date of Appointment to Present Portfolio
Prime Minister.....	Rt. Hon. PIERRE ELLIOTT TRUDEAU.....	Apr. 4, 1967	Apr. 20, 1968
Leader of the Government in the Senate.....	Hon. PAUL JOSEPH JAMES MARTIN.....	Apr. 22, 1963	Apr. 22, 1968
Secretary of State for External Affairs.....	Hon. MITCHELL WILLIAM SHARP.....	Apr. 22, 1963	Apr. 22, 1968
Minister of Public Works.....	Hon. ARTHUR LAING.....	Apr. 22, 1963	July 5, 1968
President of the Queen's Privy Council for Canada.....	Hon. ALLAN JOSEPH MACEACHEN.....	Apr. 22, 1963	Sept. 24, 1970
President of the Treasury Board.....	Hon. CHARLES MILLS DRURY.....	Apr. 22, 1963	July 5, 1968
Minister of Finance.....	Hon. EDGAR JOHN BENSON.....	June 29, 1964	Apr. 22, 1968
Minister of Industry, Trade and Commerce.....	Hon. JEAN-LUC PEPIN.....	Dec. 17, 1965	July 5, 1968
Minister of Regional Economic Expansion.....	Hon. JEAN MARCHAND.....	Dec. 17, 1965	July 5, 1968
Minister of Energy, Mines and Resources.....	Hon. JOHN JAMES GREENE.....	Dec. 17, 1965	July 5, 1968
Postmaster General.....	Hon. JOSEPH JULIEN JEAN-PIERRE CÔTÉ.....	Dec. 17, 1965	June 11, 1971
Minister of Justice and Attorney General of Canada.....	Hon. JOHN NAPIER TURNER.....	Dec. 17, 1965	July 5, 1968
Minister of Indian Affairs and Northern Development.....	Hon. JOSEPH-JACQUES-JEAN CHRETIEN.....	Apr. 4, 1967	July 5, 1968
Minister of Labour.....	Hon. BRYCE STUART MACKASEY.....	Feb. 9, 1968	July 5, 1968
Minister of National Defence.....	Hon. DONALD STOVEL MACDONALD.....	Apr. 22, 1968	Sept. 24, 1970
Minister of National Health and Welfare.....	Hon. JOHN CARR MUNRO.....	Apr. 22, 1968	July 5, 1968
Secretary of State of Canada.....	Hon. GÉRARD PELLETIER.....	Apr. 22, 1968	July 5, 1968
Minister of the Environment.....	Hon. JACK DAVIS.....	Apr. 26, 1968	June 11, 1971
Minister of Agriculture.....	Hon. HORACE ANDREW OLSON.....	July 5, 1968	July 5, 1968
Minister of Veterans Affairs.....	Hon. JEAN-EUDES DUBÉ.....	July 5, 1968	July 5, 1968
Minister of Consumer and Corporate Affairs.....	Hon. STANLEY RONALD BASFORD.....	July 5, 1968	July 5, 1968
Minister of Transport.....	Hon. DONALD CAMPBELL JAMIESON.....	July 5, 1968	May 5, 1969
Minister of State for Urban Affairs.....	Hon. ROBERT KNIGHT ANDRAS.....	July 5, 1968	June 30, 1971
Minister of Supply and Services.....	Hon. JAMES ARMSTRONG RICHARDSON.....	July 5, 1968	May 5, 1969
Minister of Manpower and Immigration.....	Hon. OTTO EMIL LANG.....	July 5, 1968	Sept. 24, 1970
Minister of National Revenue.....	Hon. HERBERT ESER GRAY.....	Oct. 20, 1969	Sept. 24, 1970
Minister of Communications.....	Hon. ROBERT DOUGLAS GEORGE STANBURY.....	Oct. 20, 1969	Aug. 11, 1971
Solicitor General of Canada.....	Hon. JEAN-PIERRE GOYER.....	Dec. 22, 1970	Dec. 22, 1970
Minister of State for Science and Technology.....	Hon. ALASTAIR WILLIAM GILLESPIE.....	Aug. 11, 1971	Aug. 11, 1971
Minister of State.....	Hon. MARTIN PATRICK O'CONNELL.....	Aug. 11, 1971	Aug. 11, 1971

<sup>1</sup> Any change occurring between Oct. 20, 1971 and the date of going to press will be carried in Appendix I.

Each Cabinet Minister usually assumes responsibility for one of the departments of government, although a Minister may hold more than one portfolio at the same time or he may hold one or more portfolios and one or more acting portfolios. A Minister without portfolio may be invited to join the Cabinet because the Prime Minister wishes to have him in the Cabinet but without the heavy duties of running a department, or he may be invited to join the Cabinet to provide a suitable balance of regional representation. Because of the cultural and geographical diversity that exists in Canada, it is necessary for the Prime Minister to give more attention to the representational aspect of his Cabinet than, perhaps, his counterparts in many other countries.

With the enactment of the Ministries and Ministers of State Act (Government Organization Act, 1970), four categories of Ministers of the Crown may be identified: departmental Ministers, Ministers without portfolio, and two types of Ministers of state. Ministers of state "for designated purposes", may occupy an office created by Proclamation; are charged with responsibilities for developing new and comprehensive policies in areas where the development of such policies is of particular urgency and importance; have a mandate effectively determined by the Governor in Council which would be of such duration as to enable them to come to grips with the policy problems assigned to them; may receive powers, duties and functions and exercise supervision and control of relevant elements of the public service; and seek parliamentary appropriations independently of any Minister



to cover the cost of their staff and operations. Other Ministers of state may be appointed to assist a departmental Minister in the discharge of his responsibilities. They may receive statutory powers, duties and functions; are limited in number by the appropriations that Parliament is willing to pass; and receive the same salary as a Minister without portfolio provided for them in the estimates of the Minister with whom they are associated.

Ministers in all four categories are appointed on the advice of the Prime Minister by commission under the Great Seal of Canada, to serve at pleasure, and to be responsible to Parliament as members of the Government and for any responsibility that might be assigned to them by law or otherwise.

### **The Cabinet Committee System**

In Canada, almost all executive acts of the Government are carried out in the name of the Governor in Council. The Committee of the Privy Council (the Cabinet) makes submissions to the Governor General for his approval, and he is bound by the Constitution in nearly all circumstances to accept them. About 2,200 Orders in Council were enacted in 1970 and, although some were of a fairly routine nature and did not require much discussion in Cabinet of the policy underlying them, others were of major significance and required extensive deliberation, sometimes covering months of meetings of officials and Cabinet committees, as well as of the full Cabinet. In addition to the determination of the policy underlying the executive acts of the Government, there are literally hundreds of other policy issues that must be resolved during the course of a year. The policy underlying each piece of legislation must be considered in Cabinet and when that is approved and legislation is drafted, it must be considered in detail so that each clause and each punctuation mark has been approved by Cabinet. Recently, between 40 and 60 Bills have been considered by Cabinet during the course of a parliamentary session. Proposals for sweeping reform of large areas of government organization or administration, and policy to be adopted in fundamental constitutional changes or at a major international conference are among the issues which, on occasion, demand such extensive and detailed consideration.

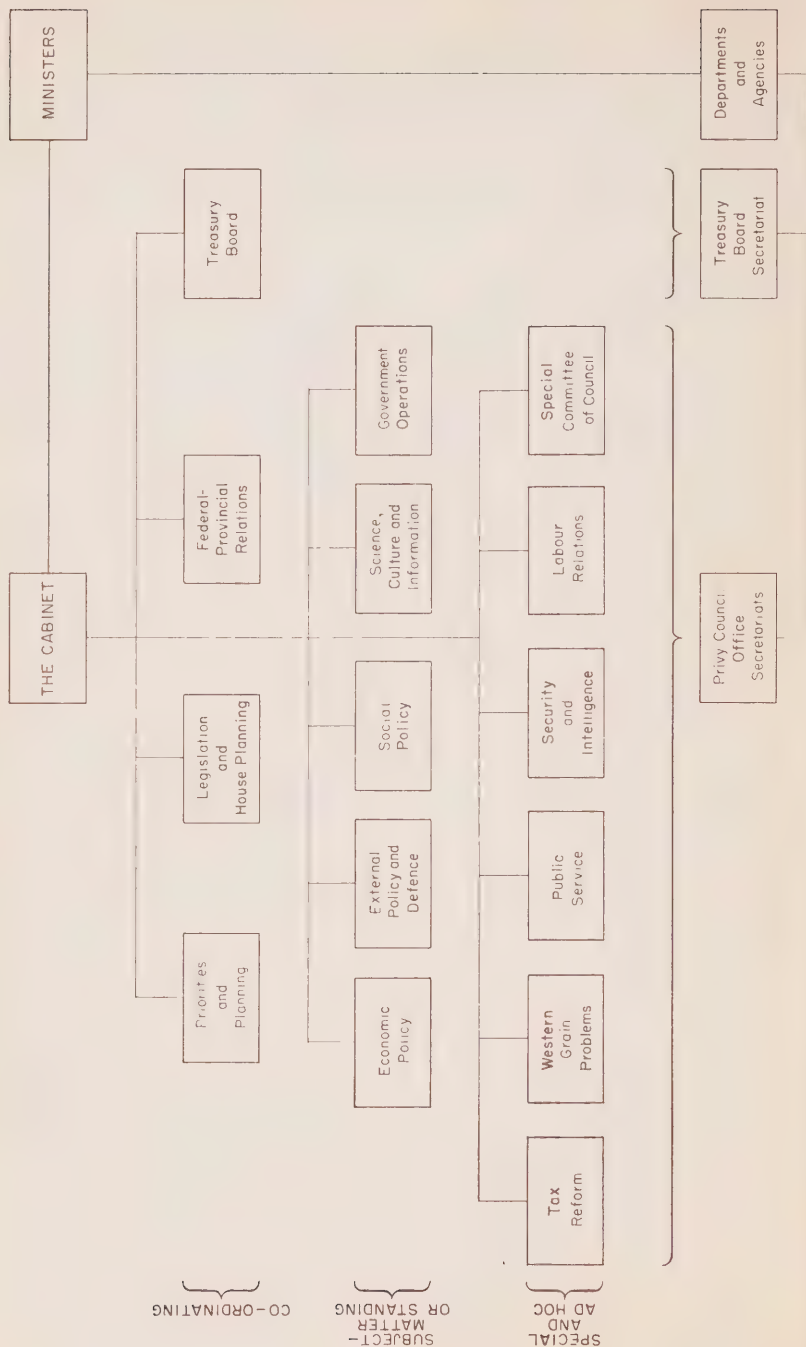
It is clear that the nature and volume of policy issues to be decided on by Cabinet do not lend themselves to discussion by 25 or 30 Ministers. The first Cabinet committee system was established after the outbreak of World War II but, since that time and more particularly in recent years, growing demands placed on the executive have stimulated the development of new approaches to the devolution of the responsibilities of Cabinet to sub-committees thereof.

Cabinet committees tend to have a membership of fewer than 10 Ministers and therefore provide a forum capable of ensuring thorough study of policy proposals. The membership of Cabinet committees is confidential and the same rules of secrecy that apply to the deliberations of Cabinet apply to those of Cabinet committees. If it were otherwise, there might be a tendency for them to develop an importance and authority of their own which would be inconsistent with the principle of the collective responsibility of Ministers. The Prime Minister determines the establishment of Cabinet committees and their composition and terms of reference. Ministers may invite one or two officials as advisers during Cabinet committee meetings. The secretariat of the Cabinet committees is provided by the Privy Council Office and the Secretary of a Cabinet committee is usually also an Assistant Secretary to the Cabinet. The Treasury Board, which is a Cabinet committee—or more precisely a sub-committee of the Committee of the Privy Council—is the only exception; it has its own secretariat headed by a secretary who has the status of a deputy minister.

Under the direction of the Prime Minister, the Secretary to the Cabinet prepares Cabinet agenda and refers memoranda to Cabinet to the appropriate Cabinet committee for study and report to the full Cabinet. Except where the Prime Minister instructs otherwise, all memoranda to Cabinet are submitted under the signature of the Minister concerned.

The terms of reference of Cabinet committees cover virtually the total area of government responsibility. All memoranda to Cabinet are first considered by a Cabinet committee,

# THE CABINET COMMITTEE SYSTEM



except when they are of exceptional urgency or when the Prime Minister otherwise directs, in which case an item may be considered immediately by the full Cabinet.

On Apr. 30, 1968, the Prime Minister established a new format for Cabinet committees. The trend in previous years was for the development of many committees to meet immediate requirements which eventually disappeared. As a result, there was a proliferation of committees and the terms of reference of some became irrelevant in terms of the demands placed on the Cabinet. The new system reduced the number of standing committees of Cabinet to eight—four subject-matter committees and four co-ordinating committees. The four subject-matter committees set up were: External Policy and Defence; Economic Policy and Programs; Communications, Works and Urban Affairs; and Social Policy. The four co-ordinating committees were: Priorities and Planning; Legislation and House Planning; Federal-Provincial Relations; and the Treasury Board. The Treasury Board is a statutory committee of the Committee of the Privy Council and under the Financial Administration Act has the status of a department. The following chart indicates the relationship of these committees to the Cabinet process.

In 1969 and 1970, the arrangement established in 1968 was further modified. The co-ordinating committees of Cabinet remained but the subject-matter or standing committees were: Economic Policy, External Policy and Defence, Social Policy, Science, Culture and Information, and Government Operations. These committees meet on a regular basis. In addition, there are six special committees of the Cabinet which meet as required: the Special Committee of Council which considers all submissions to the Governor in Council on behalf of the "Committee of the Privy Council", and the Cabinet committees on the Public Service, Security and Intelligence, Labour Relations, Tax Reform, and Western Grain Problems.

Although the importance of the Cabinet committee system may vary from Government to Government, evidence of the utility of this system is the growing reliance that has been placed on Cabinet committees since the system was established at the end of the Second World War. The following is a brief outline of the involvement of Cabinet and Cabinet committees in respect of a piece of legislation that the Government ultimately introduces into the House of Commons or the Senate.

Either on the initiative of a Minister or his departmental officials, a policy proposal is prepared, the implementation of which will require new legislation or the amendment of existing legislation. The policy proposal is submitted, under the Minister's signature, for consideration by the appropriate subject-matter committee. If approval is given, the proposal goes forward to Cabinet for confirmation. If Cabinet confirms the Committee's decision, the Department of Justice is given instructions by the Minister who made the proposal to prepare a draft Bill expressing in legal terms the intent of the policy proposal. If the draft Bill meets with the Minister's approval, he submits it to the Cabinet Committee on Legislation and House Planning where it is examined from a legal point of view rather than on the basis of its underlying policy. If the Cabinet Committee agrees that the Bill is acceptable in all respects and that it could be introduced into Parliament, it so reports to Cabinet and Cabinet decides whether to confirm the Committee's decision. If confirmation is given, the Prime Minister initials the Bill and it is then introduced either into the Senate or the House of Commons, depending on constitutional and political considerations.

The order and manner in which a Bill is considered in Parliament is the responsibility of the President of the Privy Council and House Leader who negotiates these matters with his counterparts in the opposition Parties. If a Bill is to be introduced into the Senate, the House Leader will consider questions such as timing and tactics with the Leader of the Government in the Senate, who in turn will negotiate the consideration of the Bill with his counterpart in the Senate.

**The Privy Council Office.**—The Privy Council is a secretariat which provides staff support to the Select Committee of the Privy Council and to the Cabinet. For the purposes



of the Financial Administration Act, it is considered a department of government with duties as described on p. 148. The Privy Council Office provides secretariats to serve the Cabinet, the Select Committee of the Privy Council and their various sub-committees. Since the Prime Minister is, in effect, chairman of the Cabinet, he is the Minister responsible for the Privy Council Office. The public servant who directs the work of the Privy Council Office is known as the Clerk of the Privy Council and Secretary to the Cabinet. He is the senior member of the Public Service.

**Parliamentary Secretaries.**—The Parliamentary Secretaries Act, which came into force in June 1959, provided for the appointment of 16 Parliamentary Secretaries from among the members of the House of Commons to assist Ministers in the performance of their duties. That Act was amended by the Government Organization Act, 1970, which allows the number of Parliamentary Secretaries to equal the number of Ministers who hold offices listed in Sect. 4 of the Salaries Act (i.e., Ministers with departmental responsibilities, the Prime Minister and the President of the Privy Council). A Parliamentary Secretary works under the direction of his Minister and has no legal authority in respect of the department with which he is associated, nor is he given acting responsibility or any of the powers, duties and functions of a Minister in the event of his Minister's absence or incapacity. Parliamentary Secretaries are appointed by the Prime Minister and hold office for 12 months.

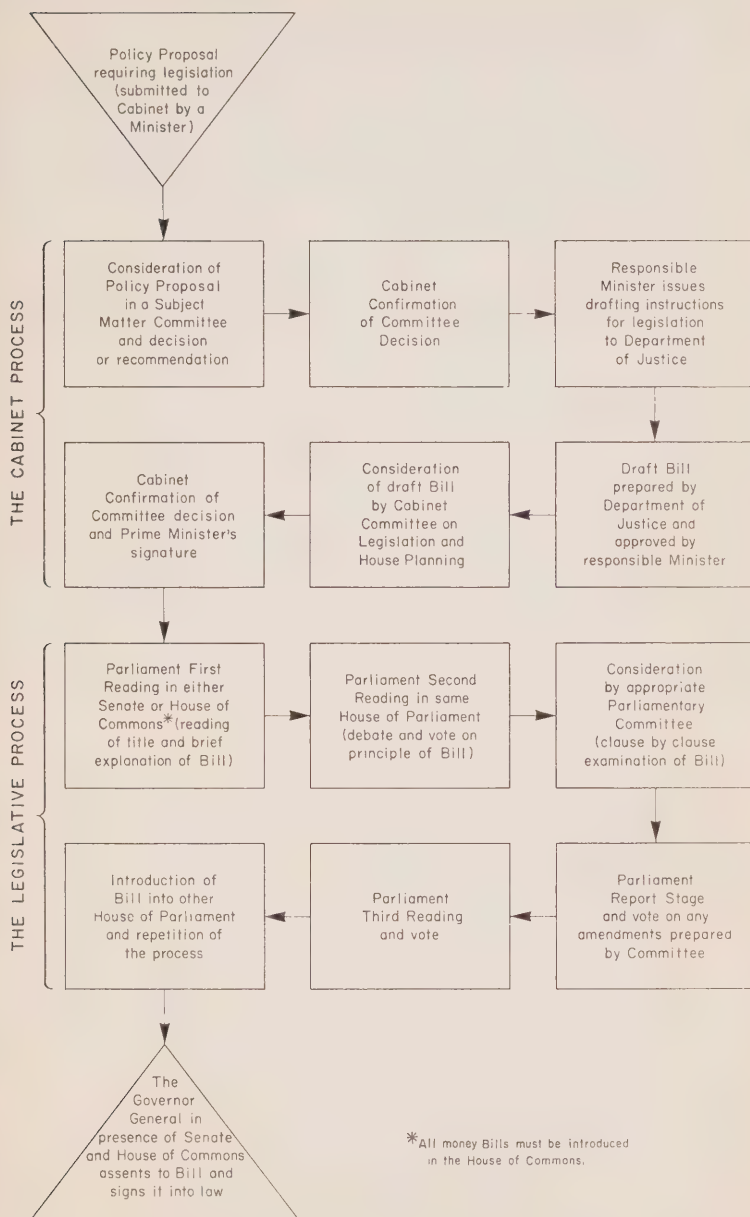
At Oct. 20, 1971, the following Parliamentary Secretaries were in office:—

<u>Secretary</u>	<u>Minister</u>
BARNETT J. DANSON.....	Prime Minister
GASTON ISABELLE.....	Secretary of State for External Affairs
PAUL ST. PIERRE.....	Secretary of State for External Affairs
GUSTAVE BLOTTIN.....	Minister of Public Works
JAMES A. IEROMI.....	President of the Privy Council
GASTON CLERMONT.....	President of the Treasury Board
PATRICK MAHONEY.....	Minister of Finance
BRUCE HOWARD.....	Minister of Industry, Trade and Commerce
JOHN ROBERTS.....	Minister of Regional Economic Expansion
ALAN B. SULATYCKY.....	Minister of Energy, Mines and Resources
GERALD R. COBBE.....	Postmaster General
ALBERT BÉCHARD.....	Minister of Justice
JUDD BUCHANAN.....	Minister of Indian Affairs and Northern Development
RAY PERRAULT.....	Minister of Labour
JACK CULLEN.....	Minister of National Defence
ANDRÉ OUELLET.....	Minister of National Health and Welfare
HUGH FAULKNER.....	Secretary of State
EYMARD G. CORBIN.....	Minister of the Environment
MARCEL LESSARD.....	Minister of Agriculture
LOYD FRANCIS.....	Minister of Veterans Affairs
D. R. TOLMIE.....	Minister of Consumer and Corporate Affairs
GÉRARD DUQUET.....	Minister of Transport
DAVID WEATHERHEAD.....	Minister of State for Urban Affairs
STEVEN OTTO.....	Minister of Supply and Services
MARCEL PRUD'HOMME.....	Minister of Manpower and Immigration
ROLAND COMTOIS.....	Minister of Communications
DOUGLAS HOGARTH.....	Solicitor General

### The Passage of Legislation

If a Bill is introduced in the House of Commons and is approved there, it must then be introduced into the Senate and follow a procedure similar to that followed in the House. If a Bill is first introduced into the Senate, the reverse procedure is followed. There are three types of Bills: (1) public Bills introduced by the Government; (2) public Bills introduced by private members of Parliament; and (3) private Bills introduced by private members of Parliament. Each type is treated in a slightly different manner, and there are even differences in procedure when the House deals with Government Bills introduced pursuant to "supply" and "ways and means" motions on the one hand, and other Government Bills on the other. The following is the procedure for a typical Government Bill which has been introduced in the House of Commons.

## PASSAGE OF LEGISLATION



The sponsoring Minister gives notice that he intends to introduce a Bill on a given subject. Not less than 48 hours later he moves for leave to introduce the Bill and that the Bill be given first reading. This is permitted automatically because introduction or first reading of a Bill does not imply approval of any sort and it is only after first reading that the Bill is ordered to be printed for distribution to the members.

At a later sitting the Minister moves that the Bill be given second reading and that it be referred to an appropriate committee of the House of Commons. A favourable vote on the motion for second reading represents approval of the principle of the Bill so there is often an extensive debate, which, according to the standing orders of the House of Commons, must be confined to the principle of the Bill. The debate culminates in a vote which, if favourable, results in the Bill being referred to the appropriate committee of the House, where it is given clause-by-clause consideration.

At the committee stage, expert witnesses and interested parties may be invited to give testimony pertaining to the Bill, and the proceedings of the committee may cover many weeks. Upon completion of its consideration of the Bill, the House committee prepares a report which it submits to the House of Commons. The House must then decide whether to accept the committee's report, including any amendments that the committee has made to the Bill.

At the report stage any member may, on giving 24 hours notice, move an amendment to the Bill, and all such amendments are debated and put to a vote. Following that, a motion "that the bill be concurred in" or "that the bill, as amended, be concurred in", is put to the vote.

Following this report stage, the Minister moves that the Bill be given third reading and passage. Debate of this motion is limited to whether the Bill should be given third reading. Amendments are permitted at this stage but they must be of a general nature, similar to those allowed on second reading. If the vote is favourable, the Bill is then introduced into the Senate where it goes through a somewhat similar process. (Since each House has its own rules of procedure, the processes in the two may not be identical, and are not identical at this time.) At the end of this procedure, the Bill is presented to the Governor General for Royal Assent and for his signature. Depending on the provisions in the Bill itself, it may come into force when it is signed by the Governor General, on an appointed day, or when it is officially proclaimed.

### Subsection 2.—The Legislature

The federal legislative authority is vested in the Parliament of Canada consisting of The Queen, an Upper House styled the Senate, and the House of Commons. Bills may originate in either the Senate or the House, subject to the provisions of Sect. 53 of the British North America Act, 1867, which provides that Bills for the appropriation of any part of the public revenue or the imposition of any tax or impost shall originate in the House of Commons. Bills must pass both Houses and receive Royal Assent before becoming law. In practice, most public Bills originate in the House of Commons, although there has been a marked increase recently in the introduction of public Bills in the Senate, at the instance of the Government, in order that Bills may be dealt with in the Senate while the Commons is engaged in other matters such as the debate on the Speech from the Throne. Private Bills usually originate in the Senate. The Senate may delay, amend or even refuse to pass Bills sent to it from the Commons, but differences are usually settled without serious conflict. (See Chap. XXVI for current legislation.)

Under Sect. 91 of the British North America Acts, 1867 to 1964, the legislative authority of the Parliament of Canada extends to the following: the amendment of the Constitution of Canada (subject to certain exceptions—see p. 77); the public debt and property; the regulation of trade and commerce; unemployment insurance; the raising of money by any mode or system of taxation; the borrowing of money on the public credit; postal service; the Census and statistics; militia, military and naval service, and defence; the fixing of and



providing for the salaries and allowances of civil and other officers of the Government of Canada; beacons, buoys, lighthouses and Sable Island; navigation and shipping; quarantine and the establishment and maintenance of marine hospitals; sea coast and inland fisheries; ferries between a province and any British or foreign country or between two provinces; currency and coinage, banking, incorporation of banks and the issue of paper money; savings banks; weights and measures; bills of exchange and promissory notes; interest; legal tender; bankruptcy and insolvency; patents of invention and discovery; copyrights; Indians and lands reserved for the Indians; naturalization and aliens; marriage and divorce; the criminal law, except the constitution of courts of criminal jurisdiction, but including the procedure in criminal matters; the establishment, maintenance and management of penitentiaries; such classes of subjects as are expressly excepted in the enumeration of the classes of subjects by these Acts assigned exclusively to the legislatures of the provinces.

Under Sect. 95, the Parliament of Canada may make laws in relation to agriculture and immigration concurrently with provincial legislatures although federal legislation is paramount in the event of conflict. By the British North America Act, 1951 (Br. Stat. 1950-51, c. 32) it is declared that the Parliament of Canada may make laws in relation to old age pensions in Canada but no such law shall affect the operation of any provincial laws in relation to old age pensions. By the British North America Act, 1964, which received Royal Assent on July 31, 1964, this amendment was extended at the request of the Parliament of Canada (June 19, 1964) to permit the payment of supplementary benefits, including survivors' and disability benefits irrespective of age, under a contributory pension plan.

**The Senate.**—From an original membership of 72 at Confederation, the Senate, through the addition of new provinces and the general growth of population, now has 102 members, the latest change in representation having been made on the admission of Newfoundland to Confederation in 1949. The growth of representation in the Senate is summarized by province in Table 7.

Senators are appointed by the Governor General by instrument under the Great Seal of Canada. The actual power of appointing Senators resides by constitutional usage in the Prime Minister, whose advice the Governor General accepts in this regard. Until the passage of "An Act to make provision for the retirement of members of the Senate" (SC 1965, c. 4), assented to on June 2, 1965, Senators were appointed for life; that Act fixes at 75 years the age at which any person appointed to the Senate after the coming into force of the Bill will cease to hold his place in the Senate.

In each of the four main divisions of Canada except Quebec, Senators represent the whole of the province for which they are appointed; in Quebec, one Senator is appointed for each of the 24 electoral divisions of what was formerly Lower Canada. The deliberations of the Senate are presided over by a Speaker appointed by the Governor General in Council (in effect by the Government) and government business in the Senate is sponsored by the Government Leader in the Senate.

The powers of the Senate, in all respects except one, are co-extensive with those of the House of Commons. The one exception is that under the Canadian Constitution all "money Bills", i.e., Bills to impose taxes or appropriate public moneys, must originate in the House of Commons. The concurrence of the Senate is necessary before any piece of legislation, public or private, can become law. Government Bills, other than money Bills, may be introduced in either House. A substantial percentage of these are now introduced in the Senate where they may be freely discussed and amended and the House of Commons thus given the benefit of their prior scrutiny by the Senate.

The Senate also retains its traditional role in respect of legislation originating in the House of Commons, namely, to take a "sober second look" at such legislation. Amendments may be made thereto and such amendments are often concurred in by the House of

Commons. If there is disagreement concerning such amendments and the disagreement is not resolved by a conference between representatives of the two Houses, the legislation cannot be further proceeded with.

The Senate provides a national forum for the discussion of public issues and the airing of grievances from whatever part of Canada they may emanate. The Senate, through its own committees and its participation in joint committees of both Houses, is particularly active in making studies in depth on matters of public concern.

#### 7.—Representation in the Senate since Confederation, 1867

Province	1867	1870	1871	1873	1882	1887	1892	1903	1905	1915-1948	1949-1971
Ontario.....	24	24	24	24	24	24	24	24	24	24	24
Quebec.....	24	24	24	24	24	24	24	24	24	24	24
Atlantic Provinces.....	24	24	24	24	24	24	24	24	24	24	30
Nova Scotia.....	12	12	12	10	10	10	10	10	10	10	10
New Brunswick.....	12	12	12	10	10	10	10	10	10	10	10
Prince Edward Island.....	...	...	...	4	4	4	4	4	4	4	4
Newfoundland.....	...	...	...	...	...	...	...	...	...	...	6
Western Provinces.....	...	2	5	5	6	8	9	11	15	24	24
Manitoba.....	...	2	2	2	3	3	4	4	4	6	6
British Columbia.....	...	...	3	3	3	3	3	3	3	6	6
Saskatchewan.....	...	...	...	...	...	2	2	4	4	6	6
Alberta.....	...	...	...	...	...	...	...	...	...	6	6
<b>Totals.....</b>	<b>72</b>	<b>74</b>	<b>77</b>	<b>77</b>	<b>78</b>	<b>80</b>	<b>81</b>	<b>83</b>	<b>87</b>	<b>96</b>	<b>102</b>

#### 8.—Members of the Senate, by Province, as at June 30, 1971<sup>1</sup>

Speaker.....	Hon. JEAN-PAUL DESCHATELETS
Leader of the Government.....	Hon. PAUL MARTIN
Leader of the Opposition.....	Hon. JACQUES FLYNN
Clerk of the Senate and Clerk of the Parliaments.....	ROBERT FORTIER

(Ranked according to seniority, by province. All Senators are entitled to the designation "Honourable".)

Province and Name of Senator	P.O. Address	Province and Name of Senator	P.O. Address
<b>Newfoundland—</b> (5 Senators—1 vacancy)		<b>New Brunswick—</b> (9 Senators—1 vacancy)	
BASHA, MICHAEL G.....	Curling	BURCHILL, GEORGE PERCIVAL.....	South Nelson
COOK, ERIC.....	St. John's	FERGUSON, MURIEL McQUEEN.....	Fredericton
CARTER, CHESLEY WILLIAM.....	St. John's	MCGRAND, FRED A.....	Fredericton Jct.
DUGGAN, JAMES.....	St. John's	FOURNIER, EDGAR.....	Iroquois
PETTEN, WILLIAM JOHN.....	St. John's	RATTENBURY, NELSON.....	Saint John
<b>Prince Edward Island—</b> (3 Senators—1 vacancy)		McELMAN, CHARLES ROBERT.....	Fredericton
INMAN, FLORENCE ELSIE.....	Montague	McLEAN, DONALD ALLAN.....	Black's Harbour
PHILLIPS, ORVILLE HOWARD.....	Alberton	MICHAUD, HÉRVÉ J.....	Fredericton
KICKHAM, THOMAS JOSEPH.....	Souris	ROBICHAUD, HÉDARD.....	Caraquet
<b>Nova Scotia—</b> (8 Senators—2 vacancies)		<b>Quebec—</b> (21 Senators—3 vacancies)	
KINLEY, JOHN JAMES.....	Lunenburg	GOULIN, LÉON MERCIER.....	Montreal
ISNOR, GORDON B.....	Halifax	FOURNIER, SARTO.....	Montreal
SMITH, DONALD.....	Liverpool	MOLSON, HARTLAND DE	
CONNOLLY, HAROLD.....	Halifax	MONTARVILLE.....	Montreal
BLOIS, FREDERICK MURRAY.....	Truro	LEFRANÇOIS, J. EUGÈNE.....	Montreal
MACDONALD, JOHN MICHAEL.....	North Sydney	MÉHOT, LÉON.....	Trois-Rivières
WELCH, FRANK C.....	Wolfville	QUART, JOSIE ALICE DINAN.....	Quebec
URQUHART, EARL WALLACE.....	West Bay	BEAUBIEN, LOUIS PHILIPPE.....	Montreal
		FLYNN, JACQUES.....	Quebec
		BOURGET, MAURICE.....	Lévis

<sup>1</sup>For footnote, see end of table.

8.—Members of the Senate, by Province, as at June 30, 1971<sup>1</sup>—concluded

Province and Name of Senator	P.O. Address	Province and Name of Senator	P.O. Address
<b>Quebec—concluded</b>		<b>Ontario—concluded</b>	
GÉLINAS, LOUIS P.....	Montreal	KINNEAR, MARY ELIZABETH.....	Port Colborne
BOURQUE, ROMUALD.....	Outremont	STANBURY, RICHARD JAMES.....	Toronto
DENIS, AZELLUS.....	Montreal	MARTIN, PAUL.....	Windsor
DESCHATELETS, JEAN-PAUL.....	Montreal	FORSEY, EUGENE A.....	Ottawa
MACNAUGHTON, ALAN AYLESWORTH.....	Westmount		
LANGLOIS, J. G. LÉOPOLD.....	Quebec	<b>Manitoba—</b>	
DESROUSSEAUX, PAUL.....	Sherbrooke	(5 Senators—1 vacancy)	
LAMONTAGNE, MAURICE.....	Montreal	HAIG, J. CAMPBELL.....	Winnipeg
ÉLDES, RAYMOND.....	Montreal	YUZYK, PAUL.....	Winnipeg
GIGUÈRE, LOUIS DE GONZAGUE.....	Montreal	EVERETT, DOUGLAS DONALD.....	Winnipeg
CASGRAIN, THÉRÈSE F.....	Montreal	MOLGAT, GILDA L.....	St. Vital
LAFOND, PAUL C.....	Hull	McNAMARA, WILLIAM C.....	Winnipeg
<b>Ontario—</b>		<b>Saskatchewan—</b>	
(23 Senators—1 vacancy)		(4 Senators—2 vacancies)	
HAYDEN, SALTER ADRIAN.....	Toronto	BOUCHER, WILLIAM ALBERT.....	Prince Albert
PATERSON, NORMAN McLEOD.....	Port William	McDONALD, ALEXANDER HAMILTON.....	Regina
ROBERTSON, ARTHUR WENTWORTH.....	Toronto	ARGUE, HAZEN ROBERT.....	Kayville
CONNOLL, JOHN J.....	Ottawa	SPARROW, HERBERT ORVILLE.....	North Battleford
CROLL, DAVID A.....	Toronto		
WHITE, GEORGE STANLEY.....	Madoc	<b>Alberta—</b>	
SULLIVAN, JOSEPH A.....	Toronto	(5 Senators—1 vacancy)	
CHOQUETTE, LIONEL.....	Ottawa	CAMERON, DONALD.....	Edmonton
WILLIS, HARRY A.....	Toronto	HASTINGS, EARL ADAM.....	Calgary
O'LEARY, M. GRATTAN.....	Ottawa	HAYS, HARRY WILLIAM.....	Calgary
CROSART, ALLISTER.....	Ottawa	PROWSE, JAMES HARPER.....	Edmonton
WALKER, DAVID JAMES.....	Toronto	MANNING, ERNEST C.....	Edmonton
BELISLE, RHÉAL.....	Sudbury		
LANG, DANIEL AIKEN.....	Toronto	<b>British Columbia—</b>	
AIRD, JOHN BLACK.....	Toronto	(3 Senators—3 vacancies)	
BENEDICKSON, WILLIAM MOORE.....	Kenora	NICHOL, JOHN LANG.....	Vancouver
DAVEY, DOUGLAS KEITH.....	Toronto	LAWSON, EDWARD M.....	Vancouver
THOMPSON, ANDREW ERNEST.....	Kendal	HEATH, ANN ELIZABETH HADDON.....	Nanaimo
LAIRD, KEITH.....	Windsor		

<sup>1</sup> Any change occurring between June 30, 1971 and the date of going to press of this volume will be carried in Appendix I.

**The House of Commons.**—The British North America Act, 1867 provided that in respect of representation in the House of Commons the Province of Quebec should have the fixed number of sixty-five members and that there should be assigned to each of the other provinces such a number of members as would bear the same proportion to the number of its population as the number sixty-five bears to the number of the population of Quebec. This Act also provided that on the completion of a census in 1871 and of each subsequent decennial census the representation of the several provinces should be readjusted provided the proportionate representation of the provinces as prescribed by the Act were not thereby disturbed.

In the session of 1946 the House of Commons adopted a resolution stating that the effect of the provisions of the British North America Act relating to representation had not been satisfactory in that proportionate representation of the provinces according to population had not been maintained and that a more equitable apportionment of members to the various provinces could be effected if readjustments were made on the basis of the population of all the provinces taken as a whole. The Act was amended accordingly in 1946 to provide a new rule to regulate representation in the House of Commons. Generally speaking, representation was fixed as follows:—

The membership assigned to each province shall be computed by dividing the total population of the provinces by two hundred and fifty-four and by dividing the population of each province by the quotient so obtained.

This rule, employed in the redistribution of representation made in 1947, was effective in the General Election of 1949.



After the completion of the 1951 Census it was apparent that, as a result of a wartime shift of population, a substantial reduction in the representation of the Province of Saskatchewan would ensue under the rules then regulating representation. Accordingly, in an effort to eliminate sharp reductions in provincial representation from one census to another, the British North America Act was again amended (RSC 1952, c. 304, Sect. 51) (see Canada Year Book 1963-64, p. 75) to ensure that the representation of any province should not be reduced by more than 15 p.c. of the representation to which it was otherwise entitled after the last census, subject however to the qualifications that the effect of the rule should not be to make the representation of a province with a smaller population greater than any province with a larger population.

Subsequently in 1952, Parliament enacted legislation (RSC 1952, c. 334), effective in the General Election of 1953 and in each successive General Election down to that of the Twenty-seventh Parliament (Nov. 8, 1965), which provided that representation in the House of Commons should be on the following basis:—

Sect. 2.—Eighty-five members of the House of Commons shall be elected for the Province of Ontario, seventy-five for the Province of Quebec, twelve for the Province of Nova Scotia, ten for the Province of New Brunswick, fourteen for the Province of Manitoba, twenty-two for the Province of British Columbia, four for the Province of Prince Edward Island, seventeen for the Province of Saskatchewan, seventeen for the Province of Alberta, seven for the Province of Newfoundland, one for the Yukon Territory and one for Mackenzie district of the Northwest Territories, thus making a total of two hundred and sixty-five members.

**1965 Redistribution of Representation in the House of Commons.**—The Representation Commissioner Act setting up the office and duties of the Representation Commissioner was given Royal Assent on Dec. 21, 1963. The Electoral Boundaries Readjustment Act providing for the establishment of Electoral Boundaries Commissions to report upon and to provide for the readjustment of the representation of the provinces in the House of Commons in accordance with the findings of the 1961 Census of Population was given Royal Assent on Nov. 20, 1964.

Pursuant to Sect. 11 of the Electoral Boundaries Readjustment Act, the Dominion Statistician sent to the Representation Commissioner a certified return showing the population of Canada and of each of the provinces and the population of Canada by electoral districts as ascertained by the 1961 Census. The Representation Commissioner calculated the number of members of the House of Commons to be assigned to each of the provinces subject and according to the provisions of Sect. 51 of the British North America Act, 1867, and the rules provided therein. He then caused a statement to be published in the *Canada Gazette* of Nov. 28, 1964, setting forth the following results:—

Eighty-eight members of the House of Commons shall be elected for the Province of Ontario, seventy-four for the Province of Quebec, eleven for the Province of Nova Scotia, ten for the Province of New Brunswick, thirteen for the Province of Manitoba, twenty-three for the Province of British Columbia, four for the Province of Prince Edward Island, thirteen for the Province of Saskatchewan, nineteen for the Province of Alberta and seven for the Province of Newfoundland.

The Governor General, by proclamation published in the *Canada Gazette*, established an Electoral Boundaries Commission for each province. It was the task of each Commission to prepare, with all reasonable dispatch, a report setting forth its recommendations concerning the division of its particular province into electoral districts and the recommendations concerning the description of the boundaries of each such district and the representation and name to be given thereto. A copy of the 1961 Census return was sent to the chairman of each Commission immediately after its members were appointed.

Pursuant to Sect. 8 of the Representation Commissioner Act, maps were prepared in the office of the Representation Commissioner showing the distribution of population in each province and setting out alternative proposals respecting the boundaries of electoral districts in each province; these maps were then supplied to the respective Commissions. The Commissions complied with the procedure of the Electoral Boundaries Act and com-

pleted their reports within the time prescribed, which was one year. Two certified copies of each report were received by the Representation Commissioner; as required by Sect. 19(1) of that Act, one of these copies was transmitted to the Speaker of the House of Commons, who in turn laid it before the House of Commons.

Then followed a period of thirty days in which objections in writing, signed by no fewer than ten members of the House of Commons, were filed with the Speaker specifying the provisions of the report objected to and the reasons for the objection. A further period of 15 days was set aside in which the House of Commons was to consider the matter of the objections; this period was increased to 45 sitting days by an Act, assented to on Feb. 23, 1966, entitled "An Act to extend the time for consideration of objections pursuant to Sect. 20 of the Electoral Boundaries Readjustment Act with respect to the reports of commissions established for the decennial census taken in the year 1961".

Several objections were filed with the Speaker, the motions were taken up and considered and the reports referred back to the Representation Commissioner by the Speaker and then to the Commissions. On the expiration of a thirty-day period for that purpose, the Commissions returned their reports with or without amendment, through the Representation Commissioner to the Speaker. Then a draft representation order was prepared by the Representation Commissioner to be transmitted to the Secretary of State. This order specified the number of members of the House of Commons who shall be elected for each of the provinces as calculated by the Representation Commissioner and, dividing each of the provinces into electoral districts, described the boundaries of each such district and specified the representation and name given thereto, in accordance with the recommendations contained in the reports. The Governor in Council, by proclamation of June 16, 1966, declared the draft representation order to be in force, effective upon the dissolution of the then-existing Parliament.

At subsequent elections, according to the representation order set out in the Schedule to the Proclamation, 88 members of the House of Commons shall be elected for the Province of Ontario, 74 for the Province of Quebec, 11 for the Province of Nova Scotia, 10 for the Province of New Brunswick, 13 for the Province of Manitoba, 23 for the Province of British Columbia, four for the Province of Prince Edward Island, 13 for the Province of Saskatchewan, 19 for the Province of Alberta and seven for the Province of Newfoundland. In addition, one member each will be elected for the Yukon Territory and the Northwest Territories, making a total representation of 264 in the House of Commons.

The number of representatives of each province elected at each of the 28 General Elections since Confederation is given in Table 9.

### 9.—Representation in the House of Commons, as at Federal General Elections 1867-1968

Province or Territory	1867	1872	1874 1878	1882	1887 1891	1896 1900	1904	1908 1911	1917 1921	1925 1926 1930	1935 1940 1945	1949	1953 1957 1958 1962 1963 1965	1968
Ontario.....	82	88	88	92	92	92	86	86	82	82	82	83	85	88
Quebec.....	65	65	65	65	65	65	65	65	65	65	65	73	75	74
Nova Scotia.....	19	21	21	21	21	20	18	18	16	14	12	13	12	11
New Brunswick.....	15	16	16	16	16	14	13	13	11	11	10	10	10	10
Manitoba.....	...	4	4	5	5	7	10	10	15	17	17	16	14	13
British Columbia.....	...	6	6	6	6	6	7	7	13	14	16	18	22	23
Prince Edward Island.....	...	...	6	6	6	5	4	4	4	4	4	4	4	4
Saskatchewan.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Alberta.....	...	...	...	...	4	4	10	10	16	21	21	20	17	13
Yukon Territory.....	...	...	...	...	...	...	1	1	1	1	1	1	1	1
Mackenzie River, N.W.T.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Newfoundland.....	...	...	...	...	...	...	...	...	...	...	...	7	7	7
<b>Totals.....</b>	<b>181</b>	<b>200</b>	<b>206</b>	<b>211</b>	<b>215</b>	<b>213</b>	<b>214</b>	<b>221</b>	<b>235</b>	<b>245</b>	<b>245</b>	<b>262</b>	<b>265</b>	<b>264</b>

<sup>1</sup> Electoral District of Northwest Territories in 1963, 1965 and 1968.

**10.—Electoral Districts, Voters on List and Votes Polled, Names and Addresses of Members of the House of Commons as Elected at the Twenty-eighth General Election, June 25, 1968 and Revised to June 30, 1971**

Speaker.....	HON. LUCIEN LAMOUREUX
Prime Minister.....	Rt. Hon. PIERRE ELLIOTT TRUDEAU
Leader of the Opposition.....	Hon. ROBERT L. STANFIELD
Clerk of the House of Commons.....	ALISTAIR FRASER

NOTE.—The vote is summarized by provinces in Table 12, p. 108. The leaders of the political parties are indicated by asterisks (\*). For Parliamentary Secretaries, see p. 92. This information, except the population of constituencies, has been supplied by the Chief Electoral Officer. Party affiliations are unofficial. Lib.=Liberal; P.C.=Progressive Conservative; N.D.P.=New Democratic Party; R.cr.=Ralliement créditiste; Ind.=Independent. Party standing at General Election of June 25, 1968: 155 Liberal, 72 Progressive Conservative, 22 New Democratic Party, 14 Ralliement créditiste, and 1 Independent.

Province and Electoral District	Population, Census 1966 <sup>1</sup>	Voters on List	Total Votes Polled (incl. rejections)	Votes Polled by Member	Name of Member	P.O. Address	Party Affiliation
	No.	No.	No.	No.			
<b>Newfoundland—</b> (7 members)							
Bonavista-Trinity- Conception.....	67,876	35,823	25,624	14,823	F. MOORES.....	Harbour Grace....	P.C.
Burin-Burgeo.....	54,219	24,626	14,993	8,674	Hon. D. JAMIESON.....	Swift Current.....	Lib.
Gander-Twillingate.....	71,620	32,842	20,085	10,601	J. H. LUNDRIKAN.....	Gander.....	P.C.
Grand Falls-White Bay-Labrador.....	66,973	32,697	20,694	10,322	A. H. PEDDLE.....	Windsor.....	P.C.
Humber-St. George's- St. Barbe.....	77,380	33,220	22,665	9,765	J. MARSHALL.....	Corner Brook.....	P.C.
St. John's East.....	83,321	41,164	30,116	18,153	J. A. McGRATH.....	St. John's.....	P.C.
St. John's West.....	72,007	37,222	27,393	15,379	W. C. CARTER.....	St. John's.....	P.C.
<b>Prince Edward Island—</b> (4 members)							
Cardigan.....	22,978	12,840	11,610	5,717	M. J. McQUAID.....	Souris.....	P.C.
Egmont.....	31,034	15,212	13,534	7,182	D. MACDONALD.....	Alberton.....	P.C.
Hillsborough.....	32,192	18,627	15,897	8,328	H. N. MACQUARRIE.....	Victoria.....	P.C.
Malpeque.....	22,331	11,537	10,184	5,049	Hon. J. A. MACLEAN.....	Belle Creek.....	P.C.
<b>Nova Scotia—</b> (11 members)							
Annapolis Valley.....	71,200	37,720	30,963	17,435	J. P. NOWLAN.....	Wolfville.....	P.C.
Cape Breton-East Richmond.....	65,292	32,771	27,867	11,583	D. MACINNIS.....	Glace Bay.....	P.C.
Cape Breton High- lands-Canso.....	57,092	31,675	27,578	13,725	Hon. A. J. MACEachen.....	Inverness.....	Lib.
Cape Breton-The Syd- neys.....	67,526	34,882	29,206	14,971	R. MUTR.....	Sydney Mines.....	P.C.
Central Nova.....	60,639	35,085	28,743	16,720	R. MACEWAN <sup>2</sup> .....	New Glasgow.....	P.C.
Cumberland- Colchester North.....	65,181	37,511	30,498	18,446	R. C. COATES.....	Amherst.....	P.C.
Dartmouth- Halifax East.....	90,286	45,022	35,961	19,694	M. FORRESTALL.....	Waverley.....	P.C.
Halifax.....	70,822	40,727	32,727	19,569	Hon. R. L. STANFIELD*.....	Halifax.....	P.C.
Halifax-East Hants.....	85,070	46,513	37,759	22,323	R. McCLEAVE.....	Halifax.....	P.C.
South Shore.....	62,692	37,677	30,234	17,547	L. R. CROUSE.....	Lunenburg.....	P.C.
South Western Nova.....	60,239	33,208	28,064	14,543	L.-R. COMEAU.....	Saultnierville.....	P.C.
<b>New Brunswick—</b> (10 members)							
Carleton-Charlotte.....	56,893	32,107	24,928	15,469	Hon. H. J. FLEMMING.....	Upper Woodstock.....	P.C.
Fundy-Royal.....	63,465	35,592	27,998	17,013	G. FAIRWEATHER.....	East Riverside.....	P.C.
Gloucester.....	59,903	28,458	22,457	12,196	H. BREAUX.....	Tracadie.....	Lib.
Madawaska-Victoria.....	67,000	26,615	20,151	9,924	E. CORBIN.....	Edmundston.....	Lib.
Moncton.....	74,110	41,742	36,145	17,969	C. H. THOMAS.....	Moncton.....	P.C.
Northumberland- Miramichi.....	54,527	24,998	19,700	10,292	G. A. P. SMITH.....	Newcastle.....	Lib.
Restigouche.....	51,519	24,113	19,748	9,991	Hon. J.-E. DUBÉ.....	Campbellton.....	Lib.
Saint John-Lancaster.....	72,597	40,273	30,073	15,756	T. M. BELL.....	Saint John.....	P.C.

<sup>1</sup> 1971 Census figures are given in Appendix II.  
in by-election Apr. 16, 1971.

<sup>2</sup> Resigned Jan. 14, 1971; Elmer M. MacKay (P.C.) elected



**10.—Electoral Districts, Voters on List and Votes Polled, Names and Addresses of Members of the House of Commons as Elected at the Twenty-eighth General Election, June 25, 1968 and Revised to June 30, 1971—continued**

Province and Electoral District	Population, Census 1966	Voters on List	Total Votes Polled (incl. rejections)	Votes Polled by Member	Name of Member	P.O. Address	Party Affiliation
	No.	No.	No.	No.			
<b>New Brunswick—concl.</b>							
Westmorland-Kent.....	51,593	26,044	21,916	11,519	G. CROSSMAN.....	Buctouche.....	Lib.
York-Sunbury.....	75,181	37,970	31,600	17,394	J. C. MACRAE.....	Silverwood.....	P.C.
<b>Quebec—</b>							
(74 members)							
Abitibi.....	58,598	27,335	20,025	10,884	G. LAPRISE.....	LaSarre.....	R.cr.
Argenteuil-Deux-Montagnes.....	72,926	41,059	32,694	15,726	R.-B. MAJOR.....	Saint-Sauveur-des-Monts.....	Lib.
Beauce.....	70,727	36,352	28,593	13,428	R. RODRIGUE.....	Ville-Saint-Georges-Ouest..	R.cr.
Beauharnois-Salaberry..	73,207	40,519	29,337	17,203	G. LANIEL.....	Salaberry-de-Valleyfield.....	Lib.
Bellechasse.....	66,376	34,985	24,070	11,137	A. LAMBERT.....	Joly.....	R.cr.
Berthier.....	62,233	34,608	23,378	10,818	A. YANAKIS.....	Saint-Gabriel-de-Brandon....	Lib.
Bonaventure-Îles-de-la-Madeleine.....	56,837	27,653	19,300	10,144	A. BÉCHARD.....	Carleton.....	Lib.
Brome-Missisquoi.....	74,247	40,555	31,095	12,905	Y. FOREST.....	Magog.....	Lib.
Chambly.....	98,822	52,146	35,379	22,767	B. PILON <sup>1</sup> .....	Beloeil.....	Lib.
Champlain.....	65,448	35,392	26,891	9,866	R. MATTE.....	Saint-Casimir.....	P.C.
Charlevoix.....	63,969	34,015	23,112	9,487	Hon. M. ASSELIN.....	La Malbaie.....	P.C.
Chicoutimi.....	79,745	38,116	28,330	14,054	P. LANGLOIS.....	Chicoutimi.....	Lib.
Compton.....	65,074	33,004	25,652	11,961	H. LATULIPE.....	Lac-Mégantic.....	R.cr.
Drummond.....	74,966	38,208	30,601	11,667	Hon. J.-L. PÉPIN.....	Drummondville.....	Lib.
Frontenac.....	67,762	33,651	27,283	12,298	B. DUMONT <sup>2</sup> .....	Plessisville.....	R.cr.
Gaspé.....	55,359	26,804	20,545	9,208	A. CYR.....	Chandler.....	Lib.
Gatineau.....	70,618	36,147	27,112	14,348	G. CLERMONT.....	Thurso.....	Lib.
Hull.....	86,111	45,700	33,796	22,982	G. ISABELLE.....	Lucerne.....	Lib.
Joliette.....	76,723	42,074	29,395	12,464	R. LASALLE.....	Crabtree.....	P.C.
Kamouraska.....	65,582	33,335	22,046	8,762	C.-E. DIONNE.....	Saint-Pascal.....	R.cr.
Labelle.....	77,041	41,781	30,621	15,801	Hon. L. CADIEUX <sup>3</sup> .....	Saint-Antoine-des-Laurentides..	Lib.
Lac-Saint-Jean.....	58,079	26,413	20,373	9,325	M. LESSARD.....	Alma.....	Lib.
Langelier.....	67,615	41,484	30,058	11,439	Hon. J. MARCHAND.....	Quebec.....	Lib.
Lapointe.....	73,436	34,613	25,549	11,821	G. MARCEAU.....	Jonquière.....	Lib.
Laprairie.....	105,660	59,731	42,884	31,968	I. WATSON.....	Laprairie.....	Lib.
Lévis.....	75,911	41,579	33,308	12,227	R. GUAY.....	Lauzon.....	Lib.
Longueuil.....	91,553	48,866	32,316	19,080	Hon. J.-P. Côté.....	Longueuil.....	Lib.
Lotbinière.....	70,465	36,692	30,397	11,302	A. FORTIN.....	Victoriaville.....	R.cr.
Louis-Hébert.....	95,493	58,369	44,994	28,220	J.-C. CANTIN.....	Cap-Rouge.....	Lib.
Manicouagan.....	74,183	37,195	22,803	13,504	G. BLOUIN.....	Sept Îles.....	Lib.
Matane.....	52,465	24,878	17,360	9,207	P. DE BANÉ.....	Quebec.....	Lib.
Montmorency.....	97,541	53,644	42,152	17,327	O. LAFAMME.....	Sainte-Foy.....	Lib.
Pontiac.....	59,755	30,896	21,186	10,250	T. LEFEBVRE.....	Davidson.....	Lib.
Portneuf.....	93,758	49,793	38,629	18,328	R. GODIN.....	Les Écureuils.....	R.cr.
Québec-Est.....	83,862	46,442	34,988	14,945	G. DUGUET.....	Quebec.....	Lib.
Richelieu.....	75,716	43,031	32,152	15,350	F. CÔTÉ.....	Sainte-Brigitte-des-Saults..	Lib.
Richmond.....	64,150	31,302	25,128	11,853	L. BEAUDOIN.....	Bromptonville.....	R.cr.
Rimouski.....	70,978	35,146	24,807	12,073	G. LEBLANC.....	Rimouski.....	Lib.
Roberval.....	56,422	26,005	18,993	8,811	C.-A. GAUTHIER.....	Mistassini.....	R.cr.
Saint-Hyacinthe.....	78,230	44,804	35,245	16,389	Hon. J.-H.-T. RICARD.....	Saint-Hyacinthe.....	P.C.
Saint-Jean.....	77,700	41,820	31,129	15,878	W. SMITH.....	Hemmingford.....	Lib.
Saint-Maurice.....	75,068	39,212	31,700	13,895	Hon. J. CHRÉTIEN.....	Shawinigan.....	Lib.
Shefford.....	75,664	39,618	31,524	12,633	G. RONDEAU.....	Granby.....	R.cr.
Sherbrooke.....	89,693	51,070	38,575	15,270	P.-M. GÉRAVAT.....	Sherbrooke.....	R.cr.
Témiscamingue.....	59,723	27,866	21,665	12,532	R. CAUETTE <sup>4</sup> .....	Roynon.....	Lib.
Témiscouata.....	64,117	31,171	22,963	10,605	R. GENDRON.....	Rivière-du-Loup.....	R.cr.
Terrebonne.....	62,821	51,625	35,106	21,191	J.-R. COMTOIS.....	Repentigny.....	Lib.
Trois-Rivières.....	93,318	52,274	39,066	17,592	J.-A. MONGRAIN <sup>4</sup> .....	Trois-Rivières.....	Lib.
Valleuve.....	61,022	29,880	21,462	10,073	O. TÊTRAULT.....	Val-d'Or.....	R.cr.

<sup>1</sup> Died Nov. 17, 1970; Yvon L'Heureux (Lib.) elected in by-election Apr. 16, 1971.

<sup>2</sup> Resigned Apr. 6, 1970; Léopold Corrivé (Lib.) elected in by-election Nov. 16, 1970.

<sup>3</sup> Accepted an office of emolument under the Crown, Sept. 17, 1970; Maurice Dupras (Lib.) elected in by-election Nov. 16, 1970.

<sup>4</sup> Died Dec. 23, 1970; Claude G. Lajoie (Lib.) elected in by-election Apr. 16, 1971.

**10.—Electoral Districts, Voters on List and Votes Polled, Names and Addresses of Members of the House of Commons as Elected at the Twenty-eighth General Election, June 25, 1968 and Revised to June 30, 1971—continued**

Province and Electoral District	Population, Census 1966	Voters on List	Total Votes Polled (incl. rejections)	Votes Polled by Member	Name of Member	P.O. Address	Party Affiliation
No.	No.	No.	No.	No.			
<b>Quebec—concluded</b>							
<i>Island of Montreal and Ile Jésus—</i>							
Ahuntsic.....	91,047	50,690	36,952	23,149	J.-L. ROCHON.....	Montreal.....	Lib.
Dollard.....	105,435	59,219	48,178	34,146	Hon. J.-P. GOYER.....	Saint-Laurent.....	Lib.
Duvernay.....	98,075	50,442	37,636	18,701	Hon. E. W. KIERANS.....	Hampstead.....	Lib.
Gamelin.....	92,611	50,846	35,619	19,051	A. PORTELANC.....	Montreal.....	Lib.
Hochelaga.....	72,880	40,424	22,641	12,080	Hon. G. PELLETIER.....	Westmount.....	Lib.
Lachine.....	90,851	51,419	40,647	25,989	R. ROCK.....	Lachine.....	Lib.
Lafontaine.....	75,018	43,868	26,258	14,786	C.-C. LACHANCE.....	Montreal.....	Lib.
LaSalle.....	94,885	57,115	39,633	26,546	H.-P. LESSARD.....	Montreal.....	Lib.
Laurier.....	75,034	31,575	19,881	10,040	F.-E. LEBLANC.....	Montreal.....	Lib.
Laval.....	98,013	53,226	39,361	24,740	M. ROY.....	Ville-de-Laval.....	Lib.
Maisonneuve-Rosemont.....	79,721	46,010	28,078	15,784	J.-A. THOMAS.....	Montreal.....	Lib.
Mercier.....	104,113	55,787	37,861	19,077	P. BOULANGER.....	Pointe-aux-Trembles.....	Lib.
Montréal-Bourassa.....	103,078	54,791	36,927	19,778	J.-L. Trudel.....	Montreal North.....	Lib.
Mount Royal.....	87,529	51,896	41,810	37,402	Rt. Hon. P. E. TRUDEAU <sup>1</sup> .....	Montreal.....	Lib.
Notre-Dame-de-Grâce.....	80,199	44,693	36,008	25,959	W. ALLMAND.....	Montreal.....	Lib.
Outremont.....	82,020	44,016	31,964	24,219	A. NOËL.....	Outremont.....	Lib.
Papineau.....	76,592	40,139	23,744	14,379	A. OUELLET.....	Montreal.....	Lib.
Saint-Denis.....	79,193	36,741	24,453	17,022	M. PRUD'HOME.....	Montreal.....	Lib.
Saint-Henri.....	72,867	36,143	20,866	12,792	G. LOISELLE.....	Montreal.....	Lib.
Saint-Jacques.....	61,562	30,334	16,896	9,701	J. GULBAULT.....	Montreal.....	Lib.
Sainte-Marie.....	67,761	38,863	22,053	9,528	J.-G. VALADE.....	Montreal.....	P.C.
Saint-Michel.....	116,330	55,500	34,878	22,307	V. FORGET.....	Saint-Michel.....	Lib.
Vaudreuil.....	97,712	51,584	40,959	29,830	R. ÉMARD.....	Ile-Perrot.....	Lib.
Verdun.....	76,832	44,542	30,322	22,436	Hon. B. MACKASEY.....	Verdun.....	Lib.
Westmount.....	81,688	51,139	39,983	31,104	Hon. C. M. DRURY.....	Westmount.....	Lib.
<b>Ontario—</b>							
(83 members)							
Algoma.....	48,081	26,213	18,977	9,542	M. FOSTER.....	Desbarats.....	Lib.
Brant.....	91,706	51,935	40,489	16,029	J. E. BROWN <sup>1</sup> .....	Brantford.....	Lib.
Bruce.....	37,054	33,722	27,521	12,775	R. WICHER.....	Warton.....	Lib.
Cochrane.....	55,750	26,877	20,357	9,803	R. W. STEWART.....	Cochrane.....	Lib.
Elgin.....	61,912	35,485	29,073	12,856	H. E. STAFFORD.....	St. Thomas.....	Lib.
Essex.....	78,352	40,991	29,840	14,707	E. WHELAN.....	Amherstburg.....	Lib.
Fort William.....	56,465	31,212	25,501	10,635	H. BADANAI.....	Thunder Bay.....	Lib.
Frontenac-Lennox and Addington.....	57,066	31,556	25,283	11,801	D. ALKENBRACK.....	Napanee.....	P.C.
Glengarry-Prescott-Russell.....	60,214	32,044	24,377	14,970	V. ETHIER.....	Glen Robertson.....	Lib.
Grenville-Carleton.....	91,635	54,006	44,334	21,250	G. BLAIR.....	Ottawa.....	Lib.
Grey-Simcoe.....	61,409	37,008	28,232	13,146	P. V. NOBLE.....	Shallow Lake.....	P.C.
Halton.....	87,817	47,589	37,320	17,837	R. L. WHITING.....	Oakville.....	Lib.
Halton-Wentworth.....	99,185	58,543	47,648	19,563	J. MORISON.....	Dundas.....	Lib.
Hamilton East.....	78,925	41,788	30,730	15,273	Hon. J. C. MUNRO.....	Hamilton.....	Lib.
Hamilton Mountain.....	99,059	54,553	43,540	17,794	G. SULLIVAN.....	Hamilton.....	Lib.
Hamilton-Wentworth.....	87,431	48,686	38,251	14,979	C. D. GIBSON.....	Ancaster.....	P.C.
Hamilton West.....	81,787	45,941	33,959	13,580	L. M. ALEXANDER.....	Hamilton.....	P.C.
Hastings.....	60,643	33,934	27,846	13,552	L. CRILS.....	Belleville.....	P.C.
Huron.....	59,605	32,086	26,995	14,652	R. E. MCKINLEY.....	Zurich.....	P.C.
Kenora-Rainy River.....	54,810	28,341	20,725	10,141	J. M. REID.....	Kenora.....	P.C.
Kent-Essex.....	78,644	43,674	31,125	15,195	H. W. DANFORTH.....	Blenheim.....	P.C.
Kingston and the Islands.....	79,857	42,602	32,951	16,234	Hon. E. J. BENSON.....	Kingston.....	Lib.
Kitchener.....	93,228	52,828	40,799	16,471	K. HYMEN.....	Kitchener.....	Lib.
Lambton-Kent.....	66,421	37,599	28,151	14,460	M. T. McCUTCHON.....	Florence.....	P.C.
Lanark-Renfrew-Carleton.....	57,967	34,140	27,948	13,156	M. McBRIDE.....	Arnprior.....	Lib.

<sup>1</sup> Accepted an office of emolument under the Crown, Apr. 8, 1971; Derek Blackburn (N.D.P.) elected in by-election Apr. 16, 1971.

10.—Electoral Districts, Voters on List and Votes Polled, Names and Addresses of Members of the House of Commons as Elected at the Twenty-eighth General Election, June 25, 1968 and Revised to June 30, 1971—continued

Province and Electoral District	Population, Census 1966	Voters on List	Total Votes Polled (incl. rejections)	Votes Polled by Member	Name of Member	P.O. Address	Party Affiliation
No.	No.	No.	No.	No.			
<b>Ontario—continued</b>							
Leeds.....	65,412	36,457	29,304	13,536	D. M. CODE.....	Smiths Falls.....	P.C.
Lincoln.....	79,123	42,792	33,111	13,328	H. G. BARRETT.....	Thorold.....	Lib.
London East.....	82,682	44,737	31,983	11,823	C. TURNER.....	London.....	Lib.
London West.....	92,588	57,166	44,391	21,764	J. BUCHANAN.....	London.....	Lib.
Middlesex.....	79,918	45,483	35,275	15,986	J. LIND.....	London.....	Lib.
Niagara Falls.....	82,873	46,473	34,151	17,183	Hon. J. J. GREENE.....	Niagara Falls.....	Lib.
Nickel Belt.....	68,504	32,379	25,821	11,551	G. J. SERRÉ.....	Chelmsford.....	Lib.
Nipissing.....	62,262	31,822	25,364	13,524	C. LEGAULT.....	Sturgeon Falls.....	Lib.
Norfolk—Haldimand.....	69,179	39,164	31,754	14,908	W. KNOXES.....	Langton.....	P.C.
Northumberland—							
Durham.....	69,413	38,254	30,993	13,707	R. C. HONEY.....	Port Hope.....	Lib.
Ontario.....	72,560	40,496	21,924	13,483	N. A. CAFIK.....	Pickering.....	Lib.
Oshawa—Whitby.....	98,458	55,687	45,757	15,224	J. E. BROADBENT.....	Oshawa.....	N.D.P.
Ottawa—Carleton.....	98,291	52,504	44,014	28,987	Hon. J. N. TURNER.....	Ottawa.....	Lib.
Ottawa Centre.....	73,339	45,370	34,306	19,578	Hon. G. McILRAITH.....	Ottawa.....	Lib.
Ottawa East.....	79,513	44,507	33,632	26,170	J.-T. RICHARD.....	Ottawa.....	Lib.
Ottawa West.....	94,365	53,724	46,364	23,750	L. FRANCIS.....	Ottawa.....	Lib.
Oxford.....	76,008	42,324	34,788	18,504	W. NESBITT.....	Woodstock.....	P.C.
Parry Sound—Muskoka.....	56,026	32,882	25,425	12,045	G. AIKEN.....	Gravenhurst.....	P.C.
Peel—Dufferin—Simcoe.....	94,857	50,586	40,372	18,950	B. S. BEER.....	Brampton.....	Lib.
Peel South.....	107,851	65,976	52,124	24,255	H. CHAPPELL.....	Cooksville.....	Lib.
Perth—Wilmet.....	69,259	39,451	31,062	14,959	Hon. J. W. MONTEITH.....	Stratford.....	P.C.
Peterborough.....	79,491	46,029	37,461	15,675	H. FAULKNER.....	Lakefield.....	Lib.
Port Arthur.....	57,028	29,984	22,952	11,079	Hon. R. K. ANDRAS.....	Thunder Bay.....	Lib.
Prince Edward—							
Hastings.....	72,355	37,939	31,175	15,682	Hon. G. HEES.....	Cobourg.....	P.C.
Renfrew North.....	59,429	28,287	23,154	13,195	L. D. HOPKINS.....	Petawawa.....	Lib.
Sarnia—Lambton.....	78,931	43,738	32,432	14,573	J. CULLEN.....	Sarnia.....	Lib.
Sault Ste. Marie.....	75,181	37,763	31,674	12,527	C. T. MURPHY.....	Sault Ste. Marie.....	Lib.
St. Catharines.....	91,990	53,455	40,149	18,100	J. C. McNULTY.....	St. Catharines.....	Lib.
Simcoe North.....	81,949	46,476	36,593	16,619	P. B. RYNARD.....	Orillia.....	P.C.
Stormont—Dundas.....	69,961	38,662	22,632	17,014	Hon. L. LAMOUREUX.....	Cornwall.....	Ind.
Sudbury.....	88,393	47,855	37,791	19,672	J. JEROME.....	Sudbury.....	Lib.
Thunder Bay.....	56,405	27,333	20,765	9,540	B. K. PENNER.....	Dryden.....	Lib.
Timiskaming.....	50,845	27,105	21,043	8,482	A. PETERS.....	New Liskeard.....	N.D.P.
Timmins.....	55,064	27,835	22,244	11,141	J.-R. ROY.....	Timmins.....	Lib.
Victoria—Haliburton.....	54,359	33,580	26,723	12,621	W. C. SCOTT.....	Kinmount.....	P.C.
Waterloo.....	99,047	57,094	45,126	15,231	M. SALTSMAN.....	Galt.....	N.D.P.
Welland.....	80,599	44,526	35,162	17,335	D. R. TOLMIE.....	Welland.....	Lib.
Wellington.....	65,376	37,470	30,569	13,496	A. D. HALES.....	Guelph.....	P.C.
Wellington—Grey—							
Dufferin—Waterloo.....	67,269	38,310	27,491	12,118	M. HOWE.....	Arthur.....	P.C.
Windsor—Walkerville.....	86,108	48,296	35,214	17,090	M. MACGUGAN.....	Windsor.....	Lib.
Windsor West.....	86,164	46,970	30,765	16,442	Hon. H. E. GRAY.....	Windsor.....	Lib.
York North.....	100,480	59,010	47,094	24,054	J. J. DANSON.....	Willowdale.....	Lib.
York—Simcoe.....	81,755	45,782	35,395	15,906	J. ROBERTS.....	Newmarket.....	Lib.
<b>Metropolitan Toronto—</b>							
Broadview.....	74,761	36,874	25,631	10,406	J. GILBERT.....	Toronto.....	N.D.P.
Davenport.....	80,824	29,106	21,598	10,736	R. L. CACCIA.....	Toronto.....	Lib.
Don Valley.....	93,338	6,849	53,827	27,335	C. P. KAPLAN.....	Downsview.....	Lib.
Eglinton.....	81,137	51,315	39,606	23,215	Hon. M. W. SHARP.....	Toronto.....	Lib.
Etobicoke.....	125,866	71,562	57,569	32,066	A. GILLESPIE.....	Toronto.....	Lib.
Greenwood.....	81,350	43,992	32,461	12,117	A. BREWIN.....	Toronto.....	N.D.P.
High Park.....	83,817	50,350	38,645	16,260	W. DEAKON.....	Islington.....	Lib.
Parkdale.....	81,268	41,650	29,165	14,717	S. HADJAS.....	Toronto.....	Lib.
Rosedale.....	77,943	47,013	33,577	19,011	Hon. D. S. MACDONALD.....	Toronto.....	Lib.
St. Paul's.....	71,703	48,074	35,925	20,981	I. WAHN.....	Toronto.....	Lib.
Scarborough East.....	113,603	64,115	49,740	23,701	Hon. M. P. O'CONNELL.....	Toronto.....	Lib.
Scarborough West.....	85,977	46,566	35,021	14,889	D. WEATHERHEAD.....	Willowdale.....	Lib.
Spadina.....	77,720	26,638	17,109	9,379	P. RYAN.....	Toronto.....	Lib.
Toronto—Lakeshore.....	82,391	45,939	33,942	14,464	K. ROBINSON.....	Toronto.....	Lib.
Trinity.....	82,111	32,676	23,022	13,126	Hon. P. HELLYER.....	Toronto.....	Lib.
York Centre.....	120,013	62,822	47,862	26,758	J. E. WALKER.....	Toronto.....	Lib.
York East.....	90,488	53,062	43,740	19,320	S. OTTO.....	Toronto.....	Lib.

<sup>1</sup> Independent Liberal as at May 21, 1971.



**10.—Electoral Districts, Voters on List and Votes Polled, Names and Addresses of Members of the House of Commons as Elected at the Twenty-eighth General Election, June 25, 1968 and Revised to June 30, 1971—continued**

Province and Electoral District	Population, Census 1966	Voters on List	Total Votes Polled (incl. rejections)	Votes Polled by Member	Name of Member	P.O. Address	Party Affiliation
	No.	No.	No.	No.			
<b>Ontario—concluded</b>							
<i>Metropolitan Toronto—concluded</i>							
York—Scarborough.....	139,535	79,786	63,994	37,374	Hon. R. D. G. STANBURY	Ottawa.....	Lib.
York South.....	85,146	39,036	28,833	12,357	D. LEWIS*	Toronto.....	N.D.P.
York West.....	114,646	59,553	45,937	20,416	P. G. GIVENS.....	Toronto.....	Lib.
<b>Manitoba—</b>							
(13 members)							
Brandon-Souris.....	63,750	36,380	29,204	15,060	Hon. W. DINSDALE....	Brandon.....	P.C.
Churchill.....	63,826	34,839	21,798	9,009	R. SIMPSON.....	Flin Flon.....	P.C.
Dauphin.....	58,986	31,487	23,559	8,701	G. RITCHIE.....	Dauphin.....	P.C.
Lisgar.....	60,737	32,656	22,965	11,785	G. MUIR <sup>1</sup> .....	Roland.....	P.C.
Marquette.....	61,990	31,875	26,303	12,706	C. STEWART.....	Minnedosa.....	P.C.
Portage.....	53,391	26,107	19,762	8,415	G. R. COBBE.....	Portage la Prairie.	Lib.
Provencher.....	63,075	31,487	21,817	9,021	M. G. SMERCHANSKI..	Winnipeg.....	Lib.
St. Boniface.....	94,132	53,071	42,839	22,032	J.-P. GUAY.....	St. Boniface.....	Lib.
Selkirk.....	91,024	49,612	39,104	17,310	E. SCHREYER <sup>2</sup> .....	Winnipeg.....	N.D.P.
Winnipeg North.....	84,035	47,839	34,687	15,608	D. ORLIKOW.....	Winnipeg.....	N.D.P.
Winnipeg North Centre.	79,039	45,390	30,671	14,880	S. H. KNOWLES.....	Winnipeg.....	N.D.P.
Winnipeg South.....	90,329	53,726	44,393	23,457	Hon. J. A. RICHARDSON.	Winnipeg.....	Lib.
Winnipeg South Centre.	98,752	57,094	46,170	23,775	E. B. OSLER.....	Winnipeg.....	Lib.
<b>Saskatchewan—</b>							
(13 members)							
Assiniboia.....	62,869	32,994	28,645	9,636	A. B. DOUGLAS*.....	Weyburn.....	Lib.
Battleford-Kindersley..	69,765	35,236	28,544	10,583	R. THOMSON.....	Duperow.....	N.D.P.
Mackenzie.....	52,613	26,912	20,420	8,578	S. J. KORCHINSKI.....	Rama.....	P.C.
Meadow Lake.....	52,556	25,700	19,544	7,688	A. C. CADIEU.....	Spiritwood.....	P.C.
Moose Jaw.....	69,532	36,022	29,672	11,982	J. L. SKOBERG.....	Moose Jaw.....	N.D.P.
Prince Albert.....	73,062	40,127	32,014	17,850	Rt. Hon. J. G. DIEFFENBAKER.	Prince Albert.....	P.C.
Qu'Appelle-Moose Mountain.....	67,671	36,411	29,660	12,429	R. R. SOUTHAM.....	Gainsborough.....	P.C.
Regina East.....	90,047	49,358	39,527	13,641	J. BURTON.....	Regina.....	N.D.P.
Regina-Lake Centre.....	92,459	52,940	44,008	17,102	L. BENJAMIN.....	Regina.....	N.D.P.
Saskatoon-Biggar.....	86,538	49,682	37,511	15,928	A. P. GLEAVE.....	Saskatoon.....	N.D.P.
Saskatoon-Humboldt..	97,034	54,246	44,490	15,210	Hon. O. E. LANG.....	Saskatoon.....	Lib.
Swift Current—Maple Creek.....	65,774	35,233	28,572	11,237	J. MCINTOSH.....	Swift Current.....	P.C.
Yorkton-Melville.....	75,424	42,737	34,186	13,212	L. NYSTROM.....	Yorkton.....	N.D.P.
<b>Alberta—</b>							
(19 members)							
Athabasca.....	61,969	27,755	18,990	8,852	P. YEWCHUK.....	Lac-la-Biche.....	P.C.
Battle River.....	62,602	32,372	24,577	15,725	C. DOWNEY.....	Castor.....	P.C.
Calgary Centre.....	80,057	50,808	36,305	16,977	Hon. D. S. HARKNESS.	Calgary.....	P.C.
Calgary North.....	108,224	58,006	43,733	21,708	E. M. WOOLLIAMS.....	Calgary.....	P.C.
Calgary South.....	104,752	56,934	43,233	20,472	P. MAHONEY.....	Calgary.....	Lib.
Crowfoot.....	56,403	29,497	22,582	16,508	J. H. HORNER.....	Pollockville.....	P.C.
Edmonton Centre.....	88,896	51,388	35,207	12,062	S. E. PAPROSKI.....	Edmonton.....	P.C.
Edmonton East.....	97,501	50,681	34,521	15,764	W. SKOREYKO.....	Edmonton.....	P.C.
Edmonton-Strathcona..	92,651	54,336	40,474	21,074	H. HARRIES.....	Edmonton.....	Lib.
Edmonton West.....	101,480	51,907	39,923	19,612	Hon. M. LAMBERT.....	Edmonton.....	P.C.
Lethbridge.....	70,395	36,224	26,645	11,901	R. D. GUNDLOCK.....	Lethbridge.....	P.C.
Medicine Hat.....	63,442	32,327	24,589	9,015	Hon. H. A. OLSON.....	Medicine Hat.....	Lib.
Palliser.....	70,494	36,943	28,279	16,967	S. SCHUMACHER.....	Drumheller.....	P.C.
Peace River.....	60,832	30,521	21,420	11,825	G. BALDWIN.....	Peace River.....	P.C.
Pembina.....	81,306	41,167	30,022	17,578	J. BIGG.....	Westlock.....	P.C.
Red Deer.....	75,993	38,198	28,988	17,930	R. N. THOMPSON.....	Red Deer.....	P.C.
Rocky Mountain.....	55,553	28,360	19,654	7,355	A. B. SULATYCKY.....	Whitecourt.....	Lib.

<sup>1</sup> Died Aug. 26, 1970; J. Murta (P.C.) elected in by-election Nov. 16, 1970.

Rowland (N.D.P.) elected in by-election Apr. 13, 1970.

<sup>2</sup> Resigned June 9, 1969; D.

<sup>3</sup> Died Mar. 6, 1971; see Appendix for by-election.

**10.—Electoral Districts, Voters on List and Votes Polled, Names and Addresses of Members of the House of Commons as Elected at the Twenty-eighth General Election, June 25, 1968 and Revised to June 30, 1971—concluded**

Province and Electoral District	Population, Census 1966	Voters on List	Total Votes Polled (incl. rejections)	Votes Polled by Member	Name of Member	P.O. Address	Party Affiliation
	No.	No.	No.	No.			
<b>Alberta—concluded</b>							
Vegreville.....	63,842	33,142	24,673	15,855	D. MAZANKOWSKI.....	Vegreville.....	P.C.
Wetaskiwin.....	66,811	33,999	23,601	15,178	H. A. MOORE.....	Wetaskiwin.....	P.C.
<b>British Columbia—</b> (23 members)							
Burnaby-Richmond-Delta.....	86,449	48,947	38,350	16,182	T. GOODE.....	Delta.....	Lib.
Burnaby-Seymour.....	87,043	50,269	39,766	17,891	R. PERRAULT.....	North Vancouver.....	Lib.
Capilano.....	92,326	54,260	42,782	28,292	Hon. J. DAVIS.....	West Vancouver.....	Lib.
Coast Chilcotin.....	61,248	31,494	21,943	10,292	P. St-PIERRE.....	Big Creek.....	Lib.
Comox-Alberni.....	77,614	41,274	30,573	11,939	R. J. J. DURANTE.....	Port Alberni.....	Lib.
Esquimalt-Saanich.....	90,889	52,587	42,000	16,501	D. ANDERSON.....	Victoria.....	Lib.
Fraser Valley East.....	70,566	37,938	28,107	9,689	J. PRINGLE.....	Chilliwack.....	Lib.
Fraser Valley West.....	85,053	47,812	38,593	14,410	M. ROSE.....	Coquitlam.....	N.D.P.
Kamloops-Cariboo.....	82,532	41,888	32,303	13,000	L. S. MARCHAND.....	Kamloops.....	Lib.
Kootenay West.....	69,284	36,210	27,287	12,181	R. HARDING.....	Silverton.....	N.D.P.
Nanaimo-Cowichan-The Islands.....	81,031	47,424	36,891	15,273	C. CAMERON <sup>2</sup> .....	Lantzville.....	N.D.P.
New Westminster.....	98,445	52,204	40,849	18,083	D. A. HOGARTH.....	Coquitlam.....	Lib.
Okanagan Boundary.....	77,937	47,555	37,973	12,321	B. HOWARD.....	Penticton.....	Lib.
Okanagan-Kootenay.....	74,378	39,897	31,071	11,370	D. STEWART.....	Kimberley.....	Lib.
Prince George-Peace River.....	92,778	44,925	31,506	10,926	R. BORRIE.....	Prince George.....	Lib.
Skeena.....	73,682	33,940	24,117	12,471	F. HOWARD.....	Terrace.....	N.D.P.
Survey-White Rock.....	85,614	49,172	36,526	16,186	B. MATHER.....	North Surrey.....	N.D.P.
Vancouver Centre.....	86,307	64,498	45,671	25,426	Hon. R. BASFORD.....	Vancouver.....	Lib.
Vancouver East.....	79,394	41,219	27,014	13,339	H. E. WINCH.....	Vancouver.....	N.D.P.
Vancouver Kingsway.....	81,226	43,818	31,749	15,599	GRACE MACINNIS.....	Vancouver.....	N.D.P.
Vancouver Quadra.....	80,140	47,381	38,484	20,788	G. DEACMAN.....	Vancouver.....	Lib.
Vancouver South.....	86,612	52,044	40,324	19,757	Hon. A. LAING.....	Vancouver.....	Lib.
Victoria.....	83,126	53,303	42,229	18,401	D. GROOS.....	Victoria.....	Lib.
<b>Yukon Territory—</b> (1 member)							
Yukon.....	14,382	7,559	6,563	3,110	E. NIELSEN.....	Whitehorse.....	P.C.
<b>Northwest Territories—</b> (1 member)							
Northwest Territories.....	28,738	13,807	9,563	6,018	R. J. ORANGE.....	Yellowknife.....	Lib.

<sup>1</sup> Election of R. J. J. Durante declared void Feb. 14, 1969; T. S. Barnett (N.D.P.) elected in by-election Apr. 8, 1969.

<sup>2</sup> Died July 28, 1968; T. C. Douglas (N.D.P.) elected in by-election Feb. 10, 1969.

**11.—By-elections from the Date of the Twenty-eighth General Election, June 25, 1968 to June 30, 1971<sup>1</sup>**

Electoral District and Province	Date of By-election	Name of New Member	P.O. Address	Party Affiliation
Central Nova, N.S.....	Apr. 16, 1971	ELMER M. MACKAY.....	Lorne, N.S.....	P.C.
Frontenac, Que.....	Nov. 16, 1970	LÉOPOLD CORRIVEAU.....	Thetford Mines, Que.....	Lib.
Labelle, Que.....	Nov. 16, 1970	MAURICE DUPRAS.....	St-Jérôme, Que.....	Lib.
Chambly, Que.....	Apr. 16, 1971	YVON L'HEUREUX.....	Beloil, Que.....	Lib.
Trois-Rivières, Que.....	Apr. 16, 1971	CLAUDE G. LAJOIE.....	Cap-de-la-Madeleine, Que.....	Lib.
Brant, Ont.....	Apr. 16, 1971	DEREK BLACKBURN.....	Brantford, Ont.....	N.D.P.
Lisgar, Man.....	Nov. 16, 1970	JACK MURTA.....	Carman, Man.....	P.C.
Selkirk, Man.....	Apr. 13, 1970	D. ROWLAND.....	Winnipeg, Man.....	N.D.P.
Comox-Alberni, B.C.....	Apr. 8, 1969	T. S. BARNETT.....	Port Alberni, B.C.....	N.D.P.
Nanaimo-Cowichan-The Islands, B.C.....	Feb. 10, 1969	T. C. DOUGLAS.....	Nanaimo, B.C.....	N.D.P.

<sup>1</sup> By-elections held between June 30, 1971 and the date of going to press will be carried in Appendix I.

**Salaries, Allowances and Pensions of Senators and Members of the House of Commons.**—Members of the Senate and House of Commons receive a sessional allowance at the rate of \$18,000 per annum. In addition, for each session of Parliament, they may be paid travelling expenses between their place of residence or constituency and Ottawa as may be required for the performance of their duties as members of the Senate or House of Commons. Senators receive an annual expense allowance of \$4,000 and members of the House of Commons receive an expense allowance of \$8,000 to \$9,650 dependent upon the electoral district represented; neither is subject to income tax and is payable quarterly. The member of the Senate occupying the recognized position as Leader of the Government in the Senate is paid, in addition to his sessional allowance, an annual allowance of \$10,000 and to the member of the Senate occupying the recognized position as Opposition Leader in the Senate there is paid, in addition to his sessional allowance, an annual allowance of \$6,000; but if the Leader of the Government is in receipt of a salary under the Salaries Act the annual allowance is not paid. The remuneration of the Prime Minister is \$25,000 a year and of a Cabinet Minister and the Leader of the Opposition in the House of Commons \$15,000 a year in addition to the sessional and expense allowances each receives as a member of Parliament. The remuneration of a Minister without Portfolio is \$7,500 a year in addition to the sessional and expense allowances, the latter being not taxable. Additional annual allowances of \$4,000 (beyond the above-noted sessional allowance) are provided to each Leader of a Party having a recognized membership of twelve or more persons in the House of Commons other than the Prime Minister and the member occupying the recognized position as Leader of the Opposition in the House of Commons and, likewise, to the Chief Government Whip and to the Chief Opposition Whip in the House of Commons. The Speaker of the Senate and the Speaker of the House of Commons each receives, besides the sessional allowance and expense allowance, a salary of \$9,000 per annum. The Deputy Speaker of the House of Commons receives a salary of \$6,000 per annum. The Speakers of the Senate and of the House of Commons are also entitled to \$3,000 in lieu of residence and the Deputy Speaker of the House of Commons an allowance of \$1,500 in lieu of residence; these allowances are not taxable. The Deputy Chairman of Committees receives an annual allowance of \$4,000. Parliamentary Secretaries to the Ministers of the Crown receive an annual allowance of \$4,000 a year, in addition to their sessional and expense allowances. A motor vehicle allowance of \$2,000 is paid to each Minister of the Crown and to the recognized Leader of the Opposition in the House of Commons, and a motor vehicle allowance of \$1,000 is paid to the Speakers of the Senate and of the House of Commons; these allowances are not taxable.

A member of Parliament contributes, by reservation,  $7\frac{1}{2}$  p.c. of his sessional indemnity toward his retirement allowance, which is based on the average of the sessional indemnity received over the best consecutive six years of his pensionable service accumulated as follows: (1)  $3\frac{1}{2}$  p.c. of this six-year average for each of the first 10 years of pensionable service; (2) 3 p.c. of this average for each of the next 10 years; (3) 2 p.c. of this average for each of the next five years; and (4) 2 p.c. of this average for each of the years of pensionable service earned by his contributions from salary for extra duties performed as a Minister, etc.; subject to an over-all maximum of 75 p.c. of that best six-year average. The survivor's benefits are as follows: (1) 60 p.c. of the member's pension entitlement to the widow or widower; (2) if there is a surviving parent, 10 p.c. of the member's pension entitlement for each child up to three; and (3) if there is no surviving parent, 20 p.c. to the member's pension entitlement for each child up to four. A member who was a member at Mar. 31, 1970, could have decided to stay under the old plan. All items that were applicable under the old plan remain in effect.

An Act to make provision for the retirement of members of the Senate (SC 1965, c. 4) entitles a Senator appointed after June 2, 1965 to become a contributor under the provisions



of the Members of Parliament Retiring Act. Senators appointed prior to that date and who have not attained the age of 75 years, who elect under the provisions of this Act, are also entitled to become contributors. Under the provisions of the Retirement Act, as amended, a Senator contributes, by reservation, 6 p.c. of \$12,000. A Senator appointed before June 2, 1965 who (a) within one year of attaining the age of 75 years resigns his place in the Senate or (b) resigns due to some permanent infirmity disabling him from performing his duties in the Senate, may be granted an annuity equal to \$8,000. The widow of a person granted such an annuity may receive an annuity equal to three fifths of the annuity to the ex-member of the Senate.

Every former Prime Minister who held office for four years will receive from the Consolidated Revenue Fund an allowance of two thirds of the annual salary provided for Prime Ministers under the Salaries Act, the allowance to commence when the former Prime Minister ceases to hold office, or attains the age of 70 years, whichever is the later, and to continue during his lifetime. The widow of a Prime Minister will receive an annual payment of one third of the allowance that was being paid or that would have been paid to her husband, where he dies without receiving the allowance, such allowance to commence immediately after the death of her husband and to continue during her natural life or until her remarriage. None of these allowances is payable while the recipient is a Senator or a member of the House of Commons.

**The Federal Franchise.**—The present federal franchise laws are contained in the Canada Elections Act (SC 1969-70, c. 49). Generally, the franchise is conferred upon all Canadian citizens, men and women, who have attained the age of 18 years and are ordinarily resident in the electoral district on the date fixed for the beginning of the enumeration at the election. British subjects, other than Canadian citizens, who were qualified as electors on June 25, 1968 and have not, since that date, ceased to be ordinarily resident in Canada, are also qualified as electors. This privilege granted to a restricted group of British subjects will terminate at midnight on June 26, 1975. Persons denied the right to vote are:—

- (1) the Chief Electoral Officer and the Assistant Chief Electoral Officer;
- (2) judges appointed by the Governor General in Council;
- (3) the returning officer for each electoral district;
- (4) persons undergoing punishment as inmates of any penal institution for the commission of any offence;
- (5) persons restrained of their liberty of movement or deprived of the management of their property by reason of mental disease; and
- (6) persons disqualified under any law relating to the disqualification of electors for corrupt or illegal practices.

Prior to July 1, 1960, the list of persons denied the right to vote included "Indians ordinarily resident on an Indian reserve who were not members of His Majesty's Forces in World Wars I or II or who did not execute a waiver of exemption under the Indian Act from taxation on and in respect of personal property". Legislation proclaimed on the above-mentioned date confers upon all Indians the same rights with respect to the franchise as enjoyed by any other Canadian citizens, without taking from them any of the rights and privileges to which they are entitled under the Indian Act. The Eskimos who are Canadian citizens are qualified as electors for the purpose of federal elections, and the assumption of that right in the far-flung communities of the Canadian Far North has grown with the establishment by the Government of electoral districts and polling facilities.

The Special Voting Rules set out in Schedule II to the Canada Elections Act prescribe voting procedure for members of the Canadian Forces, for members of the Public Service posted abroad, and also for veterans in receipt of treatment or domiciliary care in certain institutions.

## 12.—Voters on the Lists and Votes Polled at the Federal General Elections of 1962, 1963, 1965 and 1968

NOTE.—Corresponding statistics for the General Elections of 1911, 1917, 1921 and 1925 are given in the 1926 Year Book, p. 82; those for 1926 in the 1945 edition, p. 66; those for 1930 and 1935 in the 1948-49 edition, p. 94; those for 1940 in the 1956 edition, p. 81; those for 1945 in the 1957-58 edition, p. 57; those for 1949, 1953 and 1957 in the 1962 edition, p. 71; and those for 1958 in the 1966 edition, p. 90.

Province or Territory	Voters on the Lists				Votes Polled			
	1962	1963	1965	1968	1962	1963	1965	1968
	No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland.....	215,565	221,321	226,082	237,594	155,263	152,175	148,392	161,570
Prince Edward Island.....	56,542	57,029	56,484	58,216	73,509 <sup>1</sup>	69,486 <sup>1</sup>	72,006 <sup>1</sup>	51,225
Nova Scotia.....	398,161	401,874	401,521	412,791	423,556 <sup>2</sup>	419,352 <sup>2</sup>	420,146 <sup>2</sup>	339,600
New Brunswick.....	302,313	304,732	304,734	317,912	252,053	245,557	244,184	254,716
Quebec.....	2,728,191	2,807,634	2,933,031	3,083,260	2,117,644	2,143,246	2,073,314	2,229,345
Ontario.....	3,397,647	3,455,363	3,609,895	3,846,064	2,719,020	2,799,870	2,770,222	2,973,745
Manitoba.....	508,920	516,525	517,928	531,563	393,023	401,870	382,362	403,272
Saskatchewan.....	502,495	505,551	508,733	517,598	426,426	419,973	404,631	416,793
Alberta.....	680,253	700,920	725,447	774,565	505,752	552,164	534,870	567,416
British Columbia.....	891,686	921,074	972,063	1,059,959	691,930	740,229	731,438	804,108
Yukon Territory <sup>3</sup> .....	6,762	6,878	6,660	7,559	5,978	6,051	5,760	6,563
Northwest Territories <sup>4</sup> .....	11,790	11,856	12,326	13,807	8,502	8,663	9,403	9,563
<b>Totals.....</b>	<b>9,700,325</b>	<b>9,910,757</b>	<b>10,274,904</b>	<b>10,860,888</b>	<b>7,772,656</b>	<b>7,958,636</b>	<b>7,796,728</b>	<b>8,217,916</b>

<sup>1</sup> Each voter in the double-member constituency of Queens County, P.E.I., had two votes; in 1965, 26,250 voters on the list cast 44,895 votes.

<sup>2</sup> Each voter in the double-member constituency of Halifax, N.S., had two votes; in 1965, 124,633 voters on the list cast 184,153 votes.

<sup>3</sup> Electoral District of Yukon.

<sup>4</sup> Electoral District of Mackenzie River in 1962 and Electoral District of Northwest Territories in 1963, 1965 and 1968.

### Subsection 3.—The Judiciary

#### The Federal Judiciary

The Parliament of Canada is empowered by Sect. 101 of the British North America Act from time to time to provide for the constitution, maintenance and organization of a general Court of Appeal for Canada and for the establishment of any additional courts for the better administration of the laws of Canada. Under this provision, Parliament has established the Supreme Court of Canada, the Federal Court of Canada and certain miscellaneous courts.

**Supreme Court of Canada.**—This Court, first established in 1875 and now governed by the Supreme Court Act (RSC 1970, c. S-19), consists of a chief justice, who is called the Chief Justice of Canada, and eight puisne judges. The chief justice and the puisne judges are appointed by the Governor in Council and they hold office during good behaviour but are removable by the Governor General on address of the Senate and the House of Commons. They cease to hold office upon attaining the age of 75 years. The Court sits at Ottawa and exercises general appellate jurisdiction throughout Canada in civil and criminal cases. The Court is also required to consider and advise upon questions referred to it by the Governor in Council and it may also advise the Senate or the House of Commons on private Bills referred to the Court under any rules or orders of the Senate or of the House of Commons.

Appeals may be brought from any final judgement of the highest court of final resort in a province in any case where the amount or value of the matter in controversy exceeds the sum of \$10,000. An appeal may be brought from any other final judgement with leave of the highest court of final resort in the province; if such court refuses to grant leave, the Supreme Court of Canada may grant leave to appeal. The Supreme Court may grant leave to appeal from any judgement whether final or not. Appeals in respect of indictable

offences are regulated by the Criminal Code. Appeals from federal courts are regulated by the statute establishing such courts. The judgement of the Supreme Court of Canada in all cases is final and conclusive.

### 13.—Chief Justice and Judges of the Supreme Court of Canada, as at June 30, 1971

(In order of seniority)

Name	Date of Appointment
Rt. Hon. Mr. JOSEPH HONORÉ GÉRALD FAUTEUX, Chief Justice of Canada.....	Mar. 23, 1970 <sup>1</sup>
Hon. Mr. Justice DOUGLAS CHARLES ABBOTT.....	July 1, 1954
Hon. Mr. Justice RONALD MORTLAND.....	Jan. 15, 1958
Hon. Mr. Justice WILFRED JUDSON.....	Feb. 5, 1958
Hon. Mr. Justice ROLAND A. RITCHIE.....	May 5, 1959
Hon. Mr. Justice EMMETT M. HALL.....	Nov. 23, 1962
Hon. Mr. Justice WISHART FLETT SPENCE.....	May 30, 1963
Hon. Mr. Justice LOUIS-PHILIPPE PIGEON.....	Oct. 6, 1967
Hon. Mr. Justice BORA LASKIN.....	Mar. 19, 1970

<sup>1</sup> First appointed a Judge of the Supreme Court, Dec. 23, 1949.

**Federal Court of Canada.\***—The Federal Court of Canada is constituted by Act of the Parliament of Canada under Sect. 101 of the British North America Act, 1867, which, after authorizing the creation of the Supreme Court of Canada, confers on the Parliament of Canada authority to constitute other courts for the better administration of the laws of Canada. The Federal Court of Canada is a court of law, equity and admiralty and it is a superior court of record having civil and criminal jurisdiction (Sect. 3 of the Act). It was established in 1875 as the Exchequer Court of Canada, which it replaced in December 1970 (SC 1970-71, c. 1).

The Court has two divisions called the Federal Court—Appeal Division, and the Federal Court—Trial Division. The Appeal Division may be called the Court of Appeal or Federal Court of Appeal (Sect. 4 of the Act). The Court of Appeal consists of the Chief Justice of the Federal Court of Canada and three other judges. The Trial Division consists of the Associate Chief Justice of the Federal Court of Canada and seven other judges. Every judge is an ex officio member of the Division of which he is not a regular member (Sect. 5).

In addition to the establishment of full-time judges, an added capacity to cope with the purely judicial work of the Court is provided by the authority to invite retired federally appointed judges to act as Deputy Judges of the Court (Sect. 10). This authority extends also to federally appointed judges who are still in office, but only with the consent of the appropriate Chief Justice or Attorney General. Former District Judges in Admiralty are also Deputy Judges of the Court and their services can be utilized on a limited basis (Sect. 60(3)).

Provision is also made in the Act for quasi-judicial officers called Prothonotaries (Sect. 12). Their duties are defined by the Rules and may be of a judicial nature (Sect. 46(1) (h)). In addition to being taxing masters, they can, subject to supervision by the Court, deal with interlocutory work, and even take trials in minor matters as the Associate Chief Justice may find expedient in order to ensure the expeditious dispatch of the Court's business.

While all the full-time judges must reside in or near the National Capital Region (Sect. 7), each Division of the Court can sit any place in Canada and the place and time of the sittings must be arranged to suit the convenience of the litigants (Sects. 15 and 16). In addition, there is authority in the statute (Sect. 7(2)) for a rota of judges to provide for a continuity of judicial availability in any place where the volume of work, or other circumstances, makes such an arrangement expedient. This provision receives its first application in respect of British Columbia.

\* Extracted from *The Federal Court of Canada*, an official publication authorized by the Minister of Justice, March 1971. Available from Information Canada, Ottawa. (Cat. No. J2-1971)



**Miscellaneous Courts.**—*Railway Act and National Transportation Act.*—The Railway Act, 1903 (RSC 1970, c. R-2) established the Board of Railway Commissioners for Canada as a court of record; by the Transport Act, 1938 (RSC 1970, c. T-14) the name was changed to the Board of Transport Commissioners for Canada, and by the National Transportation Act, 1967 (RSC 1970, c. N-17) to the Canadian Transport Commission. This court exercises jurisdiction with respect to transport matters under the Railway Act and under the National Transportation Act, and with respect to telegraph and telephone matters under the Railway Act. The Governor in Council is given jurisdiction to vary or rescind any order of the Commission and an appeal lies from the Commission to the Supreme Court of Canada upon a question of jurisdiction or a question of law.

*Bankruptcy Act.*—By virtue of Sect. 91(21) of the British North America Act, 1867, Parliament has exclusive legislative jurisdiction in relation to bankruptcy and insolvency. By the Bankruptcy Act (RSC 1970, c. B-3) the superior courts of the provinces are constituted bankruptcy courts; original jurisdiction is conferred upon the trial courts and appellate jurisdiction is conferred upon the appeal courts of the provinces.

*Tax Review Board Act.*—The Tax Review Board, created in 1949 as the Income Tax Appeal Board and later changed to the Tax Appeal Board, now operates under the Tax Review Board Act 1970 (SC 1970-71, c. 11). The Board is a court of record and has jurisdiction to hear appeals by taxpayers against their assessment under the Income Tax Act and also appeals under the Estate Tax Act, the Old Age Security Act and certain sections of the Canada Pension Plan. An appeal lies from the Board to the Federal Court of Canada and a further appeal from that Court to the Supreme Court of Canada (see also p. 151).

*National Defence Act.*—The Court Martial Appeal Court was established in 1959 by an amendment to the National Defence Act (RSC 1970, c. N-4). The judges of the Court are not fewer than four judges of the Federal Court of Canada designated by the Governor in Council and such additional judges of a superior court of criminal jurisdiction as are appointed by the Governor in Council. The Governor in Council designates one of the judges to be president of the Court. The Court hears appeals from courts martial respecting the legality of a finding of guilty on any charge and the legality of a sentence passed by a court martial. An appeal lies from the Court Martial Appeal Court to the Supreme Court of Canada on a question of law only.

### Provincial and Territorial Judiciaries\*

Certain provisions of the British North America Act govern to some extent the provincial judiciaries. Under Sect. 92(14) the legislature of each province exclusively may make laws in relation to the administration of justice in the province including the constitution, maintenance and organization of provincial courts both of civil and of criminal jurisdiction. Sect. 96 provides that the Governor General shall appoint the judges of the superior, district and county courts in each province, except those of the courts of probate in Nova Scotia and New Brunswick. Sect. 100 provides that the salaries, allowances and pensions of judges of the superior, district and county courts (except the courts of probate in Nova Scotia and New Brunswick) are to be fixed and provided by the Parliament of Canada and these are set out in the Judges Act (RSC 1970, c. J-1 and amendments).

### Salaries, Allowances and Pensions of Judges

Sect. 100 of the British North America Act provides that the "Salaries, Allowances, and Pensions of the Judges of the Superior, District, and County Courts (except the Courts of Probate in Nova Scotia and New Brunswick) and of the Admiralty Courts in Cases where

\* More detailed information concerning provincial and territorial judiciaries is given in the 1970-71 Year Book, pp. 100-106.

the Judges thereof are for the Time being paid by Salary, shall be fixed and provided by the Parliament of Canada". These are provided by the Judges Act (RSC 1970, c. J-1 as amended by SC 1970-71, c. 55).

As of Jan. 1, 1972, the salaries of the judges of the courts are as follows. The salary of the Chief Justice of Canada is \$47,000 per annum and the salaries of the puisne judges of the Supreme Court of Canada are \$42,000 per annum. The salaries of the Chief Justice and the Associate Chief Justice of the Federal Court of Canada are \$39,000 per annum and the salaries of the other judges of the Federal Court are \$35,000 per annum. The salaries of deputy judges of the Federal Courts, who are judges of other superior courts and were formerly district judges in admiralty pursuant to the Admiralty Act, which was repealed, admiralty jurisdiction now being provided for by the Federal Court Act, are as follows: Ontario, \$1,500 and Newfoundland three judges at \$333.33 each.

All Chief Justices of provincial superior courts and the Associate Chief Justice of the Superior Court of Quebec as of Jan. 1, 1972 receive salaries of \$39,000 per annum; the puisne judges of these courts and the judges of the two territorial courts receive salaries of \$35,000 per annum. Where judicial offices are created for supernumerary judges, the incumbents will receive \$35,000 per annum. Supernumerary judges are those judges of a superior court of a province who have given up their regular judicial duties to hold themselves available to perform such special judicial duties as may be assigned to them from time to time by the Chief Justice or Associate Chief Justice of the Court of which they are a member. The chief judges of county and district courts receive salaries of \$27,000 per annum and the remaining judges and junior judges of all county and district courts receive salaries of \$25,000 per annum.

Every judge who is in receipt of a salary under the Judges Act is paid an additional salary of \$3,000 per annum as compensation for any extra-judicial services that he may be called upon to perform by the Government of Canada or the government of a province, and for the incidental expenditures that the fit and proper execution of his office as judge may require. In the case of each judge of the Federal Court of Canada and of the territorial courts of the Yukon Territory and the Northwest Territories an additional allowance of \$2,000 per annum is paid as compensation for special incidental expenditures inherent in the exercise of his office as judge.

*Travelling Allowances.*—The Judges Act provides that a judge of superior or county court who, for the purpose of performing any function or duty as such judge, attends at any place other than that at which or in the immediate vicinity of which he is by law obliged to reside is entitled to be paid, as a travelling allowance, his moving or transportation expenses and reasonable travelling and other expenses incurred by him in so attending. If a judge uses his personal automobile because of the lack of good public transportation facilities, he is paid a mileage allowance.

*Annuities.*—Judges' annuities are non-contributory and the statutory retirement age is 75 years except for judges of the Federal Court of Canada who cease to hold office at the age of 70 years and judges of the county courts who are compulsorily retired at the age of 70 years. Those judges of the county courts who held office at the time the retirement age was reduced to the age of 70 years (1971) are not affected by the earlier retirement age but are allowed to serve as judges until they reach 75 years of age, the retirement age in force previously. The Governor in Council may grant an annuity to: (1) a judge who has continued in judicial office for at least 15 years and has attained the age of 65 years, if he resigns his office; (2) a judge who has continued in judicial office for at least 15 years, if he resigns his office and in the opinion of the Governor in Council the resignation is conducive to the better administration of justice or is in the national interest; (3) a judge who has become afflicted with some permanent infirmity disabling him from the due execution of his office, if he resigns his office or by reason of such infirmity, is removed from office; or (4) a judge who ceases to hold office by reason of his having attained the age of retirement, if he has held judicial office for at least 10 years. The amount of the annuity may not exceed

two thirds of the salary annexed to the office held by the judge at the time of his resignation, removal or ceasing to hold office, as the case may be. An annuity granted to a judge commences on the day of his resignation, removal or ceasing to hold office and continues during his natural life.

The Governor in Council may grant to the widow of a judge who dies while in office an annuity not exceeding two ninths of the salary of the judge at the date of his death, to commence immediately after the death of the judge and to continue thenceforth during her natural life. The Governor in Council may also grant to each of a maximum of four dependent children of a judge, who dies while holding office or of a judge who is in receipt of an annuity under the Judges Act, an annuity equal to one fifth of the annuity payable to his widow, or if the judge dies without leaving a widow or such widow is dead, two fifths of the annuity that would have been payable to the judge's widow. Where a judge who was granted an annuity upon his retirement dies, the Governor in Council may grant to the widow an annuity not exceeding one third of the annuity that was granted to him. Two ninths of salary and one third of annuity are the same amount in dollars. An annuity granted to the widow of a judge ceases upon her remarriage. No annuity may be granted if the widow married the judge after he ceased to hold office.

## Section 2.—Provincial and Territorial Governments\*

In each of the provinces, The Queen is represented by a Lieutenant-Governor appointed by the Governor General in Council. The Lieutenant-Governor acts on the advice and with the assistance of his Ministry or Executive Council which is responsible to the Legislature and resigns office under circumstances similar to those described on p. 80 concerning the Federal Government.

The Legislature of each province is unicameral, consisting of the Lieutenant-Governor and a Legislative Assembly. The Legislative Assembly is elected by the people for a statutory term of five years but may be dissolved within that period by the Lieutenant-Governor on the advice of the Premier of the province.

The source of legislative authority of the Provincial Legislatures is the British North America Act, 1867 (Br. Stat. 1867, c. 3 and amendments). Under Sect. 92 of the Act, the Legislature of each province exclusively may make laws in relation to the following matters: amendment of the constitution of the province except as regards the Lieutenant-Governor; direct taxation within the province; borrowing of money on the credit of the province; establishment and tenure of provincial offices and appointment and payment of provincial officers; the management and sale of public lands belonging to the province and of the timber and wood thereon; the establishment, maintenance and management of public and reformatory prisons in and for the province; the establishment, maintenance and management of hospitals, asylums, charities and eleemosynary institutions in and for the province, other than marine hospitals; municipal institutions in the province; shop, saloon, tavern, auctioneer and other licences issued for the raising of provincial or municipal revenue; local works and undertakings other than interprovincial or international lines of ships, railways, canals, telegraphs, etc., or works which, although wholly situated within one province, are declared by the Federal Parliament to be for the general advantage either of Canada or of two or more provinces; the incorporation of companies with provincial objects; the solemnization of marriage in the province; property and civil rights in the province; the administration of justice in the province including the constitution, maintenance and organization of provincial courts both of civil and of criminal jurisdiction including procedure in civil matters in these courts; the imposition of punishment by fine, penalty or imprisonment in enforcing any law of the province relating to any of the aforesaid subjects; generally all matters of a merely local or private nature in the province.

\* Except where indicated, the information given in this Section is brought up to June 30, 1971. Any important changes occurring between that date (or the date given) and the time of going to press will be found in Appendix I to this volume.



Further, in and for each province the Legislature exclusively may, under Sect. 93, make laws in relation to education subject to certain restrictions relating to the establishment of schools by religious minorities. These powers with similar restrictions were conferred on the more recently admitted provinces on their inclusion in the federation.

The Provincial Legislatures may also make laws under Sect. 95 in relation to agriculture and immigration, subject to any laws of the Parliament of Canada in relation to these subjects.

**Provincial Franchise.**—Details regarding qualifications and disqualifications of the franchise are contained in the Elections Act of each province. In general, every person, male or female, at a specified age (18 to 21 years) who is a Canadian citizen or (in certain provinces) other British subject, who complies with certain residence requirements in the province and the electoral district of polling and who falls under no statutory disqualifications, is entitled to vote. Voting privileges are given to persons in Prince Edward Island, Quebec, Ontario, Manitoba, Saskatchewan and Alberta at the age of 18, in Newfoundland, Nova Scotia and British Columbia at 19 years and in New Brunswick at 21 years.

### Subsection 1.—Newfoundland

The Government of Newfoundland consists of a Lieutenant-Governor, an Executive Council and a Legislative Assembly. The Legislative Assembly has 42 members elected for a term of five years. The Legislature elected Oct. 28, 1971 is the 35th in the history of Newfoundland and the 7th since Confederation. Lieutenant-Governors from the date of Confederation, Mar. 31, 1949, to 1968 are cited in the 1969 Year Book, p. 80; since Apr. 2, 1969, the position has been held by the Hon. E. John A. Harnum. The first Ministry was formed on July 13, 1949 under the leadership of the Hon. Joseph R. Smallwood.

The Premier receives a salary of \$12,000 and the other Cabinet Ministers \$11,000 per annum, plus a sessional indemnity of \$6,666.67 and a travelling and expense allowance of \$3,333.33. Each member of the House of Assembly receives a sessional indemnity of \$6,666.67 plus a travelling and expense allowance of \$3,333.33. The Leader of the Opposition receives an additional allowance of \$11,000.

#### 14.—Legislatures of Newfoundland, 1949-70, as at Oct. 28, 1971

Date of Election	Legislature	Number of Sessions	Date of First Opening	Date of Dissolution
May 27, 1949	1st.....	4	July 11, 1949	Nov. 3, 1951
Nov. 20, 1951	2nd.....	7	Mar. 11, 1952	Sept. 10, 1956
Oct. 2, 1956	3rd.....	3	Mar. 19, 1957	July 28, 1959
Aug. 20, 1959	4th.....	4	Apr. 20, 1960	Mar. 20, 1962
Nov. 19, 1962	5th.....	4	Mar. 20, 1963	Aug. 17, 1966
Sept. 8, 1966	6th.....	5	Mar. 20, 1963	Aug. 17, 1966
Oct. 28, 1971	7th.....	1	Nov. 30, 1966	Oct. 5, 1971

<sup>1</sup> Legislature not yet in session on Oct. 28, 1971.

The reader is referred to Appendix I for Table 15 showing the party standing following the General Election of Oct. 28, 1971, and the new Ministry. Results of that election had not been finalized at the time of going to press with this Chapter.

### Subsection 2.—Prince Edward Island

The Government of Prince Edward Island consists of a Lieutenant-Governor, an Executive Council and a Legislative Assembly. Lieutenant-Governors from Confederation (1873) to 1959 are cited in the 1960 Year Book, p. 105; since that date, the position has been held by the Hon. F. W. Hyndman, appointed effective Mar. 31, 1958, followed by the Hon. W. J. MacDonald, appointed effective Aug. 1, 1963, and the Hon. J. George MacKay, appointed effective Oct. 6, 1969.

The Legislative Assembly elected May 11, 1970 is the 52nd in the history of Prince Edward Island Legislatures and the 27th since Confederation. It has 32 members from 16 electoral districts who may serve for a statutory term of five years. Each district elects one Councillor and one Assemblyman. Premiers from Confederation to 1959 are listed in the 1960 Year Book, p. 105. The Hon. Walter R. Shaw was Premier from Sept. 16, 1959 until the present Premier took office following the General Election of May 30, 1966.

The annual salary of the Premier is \$9,000, of a Cabinet Minister \$6,000 and of a Minister without Portfolio \$3,600. A member of the Assembly receives \$2,666.67 for each regular session attended by him and an additional amount of \$1,333.33, tax-free, for travelling and other expenses incurred in connection with session attendance and representing his district; the Speaker of the Assembly receives a further additional sum of \$1,000 and an additional amount of \$500, tax-free, for travelling and other expenses incurred in connection with his official duties for each session; to cover like expenditures, the Deputy Speaker receives a further additional sum of \$600 and an additional amount of \$300, tax-free, and the Leader of the Opposition a further additional sum of \$1,666.67 and an additional amount of \$833.33, tax-free. Payment for indemnity for travelling and other expenses incurred by a member of the Legislature, the Speaker, the Deputy Speaker and the Leader of the Opposition accrue from his election to the Legislature and are paid monthly. No sessional indemnity or expenses are paid for any special session of the Legislature.

#### 16.—Legislatures of Prince Edward Island, 1955-71, as at June 30, 1971

NOTE.—Legislatures from Confederation to 1923 are given in the 1924 Year Book, p. 75; for 1924-35 in the 1938 edition, p. 110; and for 1936-47 in the 1963-64 edition, p. 82.

Date of Election	Legislature	Number of Sessions	Date of First Opening	Date of Dissolution
Apr. 26, 1951	22nd.....	6	Oct. 23, 1951	Apr. 27, 1955
May 25, 1955	23rd.....	4	Feb. 2, 1956	Aug. 3, 1959
Sept. 1, 1959	24th.....	4	Mar. 1, 1960	Nov. 8, 1962
Dec. 10, 1962	25th.....	4	Mar. 14, 1963	Apr. 14, 1966
May 30, 1966	26th.....	4	Nov. 23, 1966	Mar. 26, 1970
May 11, 1970	27th.....	1	June 2, 1970	1

<sup>1</sup> Life of Legislature not expired at June 30, 1971.

#### 17.—Twenty-seventh Ministry of Prince Edward Island, as at June 30, 1971

(Party standing at latest General Election, May 11, 1970: 27 Liberal and 5 Progressive Conservative.)

Office	Name	Date of First Appointment	Date of Present Appointment
Premier and Minister of Development.....	HON. ALEXANDER B. CAMPBELL.....	July 28, 1966	{July 28, 1966 {Apr. 22, 1969
Minister of Education, President of Executive Council, Minister of Justice, and Attorney and Advocate General.....	HON. GORDON L. BENNETT.....	July 28, 1966	{July 28, 1966 {Sept. 24, 1970
Minister of Tourist Development.....	HON. M. LORNE BONNELL.....	June 16, 1955	July 28, 1966
Minister of Public Works and Minister of Highways.....	HON. GEORGE J. FERGUSON.....	July 28, 1966	July 28, 1966
Minister of Agriculture and Forestry.....	HON. DANIEL J. MACDONALD.....	July 28, 1966	July 28, 1966
Minister of Finance and Provincial Secretary.....	HON. T. EARLE HICKEY.....	July 28, 1966	July 28, 1966
Minister of Health and Minister of Welfare.....	HON. JOHN H. MALONEY.....	June 25, 1970	June 25, 1970
Minister of Labour, Industry and Commerce and Minister of Fisheries.....	HON. BRUCE L. STEWART.....	June 1, 1970	{Sept. 24, 1970 {June 1, 1970
Minister of Community Services.....	HON. ROBERT SCHURMAN.....	Sept. 24, 1970	Sept. 24, 1970
Minister without Portfolio.....	HON. ROBERT E. CAMPBELL.....	Nov. 30, 1966	Nov. 30, 1966

### Subsection 3.—Nova Scotia

The Government of Nova Scotia consists of a Lieutenant-Governor, an Executive Council and a House of Assembly. Lieutenant-Governors from Confederation (1867) to 1959 are cited in the 1960 Year Book, p. 106; since that date the position has been held by Maj.-Gen. the Hon. E. C. Plow, commissioned to office Sept. 1, 1958, followed by the Hon. H. P. MacKeen, commissioned to office Mar. 1, 1963, and the Hon. Victor deB. Oland, commissioned to office July 22, 1968.

The Legislature has 46 members elected for a maximum term of five years. The Legislature elected Oct. 13, 1970 is the 50th in Nova Scotia's history and the 27th since Confederation. Premiers from Confederation to 1959 are listed in the 1960 Year Book, p. 107; the Hon. R. L. Stanfield, Premier at that time, was followed by the Hon. George I. Smith who assumed office Sept. 13, 1967, and the Hon. Gerald A. Regan on Oct. 28, 1970.

The Premier of the province receives a salary of \$18,500 per annum and each Cabinet Minister a salary of \$16,500 per annum. Each member of the House of Assembly receives a sessional indemnity of \$5,000 and an allowance of \$2,500 for expenses incidental to the discharge of his duties. The Leader of the Opposition receives an allowance of \$16,500 in addition to his sessional indemnity.

#### 18.—Legislatures of Nova Scotia, 1955-71, as at June 30, 1971

NOTE.—Legislatures from Confederation to 1923 are given in the 1924 Year Book, p. 76; for 1924-33 in the 1938 edition, p. 111; and for 1933-49 in the 1963-64 edition, p. 83.

Date of Election	Legislature	Number of Sessions	Date of First Opening	Date of Dissolution
May 26, 1953	22nd.....	3	Feb. 24, 1954	Sept. 20, 1956
Oct. 30, 1956	23rd.....	3	Feb. 27, 1957	Apr. 26, 1960
June 7, 1960	24th.....	3	Feb. 8, 1961	Aug. 29, 1963
Oct. 8, 1963	25th.....	5	Feb. 9, 1964	Apr. 20, 1967
May 30, 1967	26th.....	4	Dec. 1, 1967	Sept. 5, 1970
Oct. 13, 1970	27th.....	1	Dec. 10, 1970	<sup>1</sup>

<sup>1</sup> Life of Legislature not expired at June 30, 1971.

#### 19.—Eighteenth Ministry of Nova Scotia, as at June 30, 1971

(Party standing at latest General Election, Oct. 13, 1970: 23 Liberal, 21 Progressive Conservative and 2 New Democratic Party.)

Office	Name	Date of Appointment
Premier and Chairman, Nova Scotia Power Commission.....	Hon. GERALD A. REGAN.....	Oct. 28, 1970
Minister of Finance and Minister of Education.....	Hon. PETER M. NICHOLSON.....	Oct. 28, 1970
Minister of Highways, Minister of Public Works and Minister of Tourism.....	Hon. A. GARNET BROWN.....	Oct. 28, 1970
Attorney General and Minister of Labour.....	Hon. LEONARD L. PACE.....	Oct. 28, 1970
Minister of Lands and Forests, Minister of Fisheries and Minister i/c of administration of Emergency Measures Act.....	Hon. BENOIT COMEAU.....	Oct. 28, 1970
Minister of Agriculture and Marketing, Minister of Municipal Affairs and Minister i/c of administration of Nova Scotia Liquor Control Act.....	Hon. J. WILLIAM GILLIS.....	Oct. 28, 1970
Minister of Public Welfare, Minister of Mines and Minister i/c of administration of Water Act.....	Hon. ALLAN E. SULLIVAN.....	Oct. 28, 1970
Provincial Secretary and Minister of Development.....	Hon. RALPH F. FISKE.....	Oct. 28, 1970
Minister of Public Health, Minister i/c of administration of Housing Development Act and Minister i/c of administration of Human Rights Act.....	Hon. D. SCOTT MacNUTT.....	Oct. 28, 1970



### Subsection 4.—New Brunswick

The Government of New Brunswick has a Lieutenant-Governor, an Executive Council and a House of Assembly. Lieutenant-Governors since Confederation (1867) to 1959 are cited in the 1960 Year Book, p. 108; since that date, the position has been held by the Hon. J. Leonard O'Brien, appointed June 6, 1958, followed by the Hon. John B. McNair, appointed June 9, 1965, and the Hon. W. S. Bird, appointed Feb. 1, 1968.

The Legislature elected Oct. 26, 1970 is the 47th in New Brunswick's history and the 20th since Confederation. It has 58 members who are elected for a statutory term of five years. Premiers from Confederation to 1959 are listed in the 1960 Year Book, p. 108; the Hon. Louis J. Robichaud assumed office on July 12, 1960 and the Hon. Richard Hatfield on Nov. 12, 1970.

The Premier receives \$20,000 per annum in addition to the salary for any other portfolio he may hold. The salary of each Cabinet Minister is \$12,000 and the amount paid as indemnity to each member of the House of Assembly is \$5,000 plus an additional \$2,500 allowance for expenses. The Leader of the Opposition receives an additional \$8,000 and the Speaker receives an allowance of \$1,000 in addition to the regular indemnity.

### 20.—Legislatures of New Brunswick, 1955-71, as at June 30, 1971

NOTE.—Legislatures from Confederation to 1923 are given in the 1924 Year Book, p. 77; for 1924-35 in the 1938 edition, p. 112; and for 1936-48 in the 1963-64 edition, p. 84.

Date of Election	Legislature	Number of Sessions	Date of First Opening	Date of Dissolution
Sept. 22, 1952	42nd.....	4	Feb. 12, 1953	Apr. 17, 1956
June 18, 1956	43rd.....	4	Feb. 21, 1957	May 19, 1960
June 27, 1960	44th.....	3	Nov. 17, 1960	Mar. 12, 1963
Apr. 22, 1963	45th.....	5	May 28, 1963	Sept. 8, 1967
Oct. 23, 1967	46th.....	3	Feb. 27, 1968	Sept. 2, 1970
Oct. 26, 1970	47th.....	1	Mar. 2, 1971	<sup>1</sup>

<sup>1</sup> Life of Legislature not expired at June 30, 1971.

### 21.—Twenty-fourth Ministry of New Brunswick, as at June 30, 1971

(Party standing at latest General Election, Oct. 26, 1970: 32 Progressive Conservative and 26 Liberal.)

Office	Name	Date of Appointment
Premier.....	HON. RICHARD HATFIELD.....	Nov. 12, 1970
Minister of Agriculture and Rural Development and Minister of Economic Growth.....	HON. EDISON STAIRS.....	Nov. 12, 1970
Minister of Education.....	HON. LORNE MCGUIGAN.....	Nov. 12, 1970
Minister of Finance.....	HON. JEAN-MAURICE SIMARD.....	Nov. 12, 1970
Minister of Fisheries and Environment.....	HON. WILLIAM COCKBURN.....	Nov. 12, 1970
Minister of Health.....	HON. PAUL CREAGHAN.....	Nov. 12, 1970
Minister of Highways and Minister of Public Works.....	HON. J. STEWART BROOKS.....	Nov. 12, 1970
Minister of Justice.....	HON. JOHN B. M. BAXTER.....	Nov. 12, 1970
Minister of Labour and Provincial Secretary.....	HON. RODMAN E. LOGAN.....	Nov. 12, 1970
Minister of Municipal Affairs.....	HON. JEAN-PAUL LEBLANC.....	Nov. 12, 1970
Minister of Natural Resources.....	HON. WILFRED BISHOP.....	Nov. 12, 1970
Minister of Youth and Welfare.....	HON. BRENDA ROBERTSON.....	Nov. 12, 1970
Minister of Tourism.....	HON. J. C. VAN HORNE.....	Nov. 12, 1970
Minister i/c of New Brunswick Electric Power Commission.....	HON. GEORGE E. MCINERNEY.....	Nov. 12, 1970
Minister without Portfolio.....	HON. G. EVERETT CHALMERS.....	Nov. 12, 1970
Minister without Portfolio.....	HON. CYRIL B. SHERWOOD.....	Nov. 12, 1970
Minister without Portfolio.....	HON. HORACE B. SMITH.....	Nov. 12, 1970

### Subsection 5.—Quebec

The Government of Quebec consists of a Lieutenant-Governor, an Executive Council and a National Assembly. The Legislative Council—the upper chamber of the Quebec Government for 101 years—was abolished by Act of the Quebec Legislature on Nov. 29, 1968, effective Dec. 31, 1968, and by the same Act the name of the Legislative Assembly was changed to “National Assembly of Quebec”.

Lieutenant-Governors from Confederation (1867) to 1959 are cited in the 1960 Year Book, p. 109; since that date the position has been held by the Hon. Onésime Gagnon, commissioned to office Feb. 14, 1958, followed by the Hon. Paul Comtois, commissioned to office Oct. 6, 1961, and the Hon. Hugues Lapointe, commissioned to office Feb. 22, 1966.

The National Assembly has 108 members elected for a maximum period of five years. Prime Ministers of Quebec from Confederation to 1959 are listed in the 1960 Year Book, p. 110; Mr. Jean Lesage became Prime Minister in 1960, Mr. Daniel Johnson in 1966, Mr. Jean-Jacques Bertrand in 1968 and Mr. Robert Bourassa on Apr. 29, 1970.

### 22.—Legislatures of Quebec, 1955-71, as at June 30, 1971

NOTE.—Legislatures from Confederation to 1923 are given in the 1924 Year Book, p. 78; for 1924-35 in the 1938 edition, p. 113; and for 1936-48 in the 1963-64 edition, p. 85.

Date of Election	Legislature	Number of Sessions	Date of First Opening	Date of Dissolution
July 16, 1952	24th.....	4	Nov. 12, 1952	Apr. 25, 1956
June 20, 1956	25th.....	4	Nov. 14, 1956	Apr. 27, 1960
June 22, 1960	26th.....	3	Sept. 20, 1960	Sept. 19, 1962
Nov. 15, 1962	27th.....	6	Jan. 15, 1963	Apr. 18, 1966
June 5, 1966	28th.....	5	Dec. 1, 1966	Mar. 12, 1970
Apr. 29, 1970	29th.....	1	June 9, 1970	<sup>1</sup>

<sup>1</sup> Life of the Legislature not expired at June 30, 1971.

Each member of the National Assembly receives a sessional indemnity of \$12,000 and an expense allowance of \$6,000. In addition to this indemnity and allowance, the Prime Minister receives an annual salary of \$16,000, a representation allowance of \$4,000 and a housing allowance of \$2,000; members of the Cabinet receive an annual allowance of \$12,000 and a supplement of \$3,000 in the form of representation allowance. Ministers without Portfolio receive an annual indemnity of \$8,000 with a representation allowance of \$3,000. The Chief Whips and Parliamentary Assistants receive an annual indemnity of \$3,000 and a representation allowance of \$1,000. The Speaker of the National Assembly receives an indemnity of \$10,000, a representation allowance of \$2,000 and a housing allowance of \$1,000; the Deputy Speaker receives an indemnity of \$5,000 and a representation allowance of \$1,000. The Leader of the Opposition receives an indemnity of \$10,000, a representation allowance of \$3,000 and a housing allowance of \$2,000.

Members of the National Assembly, with the exception of Ministers, are entitled to a supplementary allowance of \$200 a month for the maintenance of an office where they may receive their constituents and fulfil other responsibilities. In addition, legislation was passed on July 17, 1970 providing for an indemnity of \$3,000 and an allowance of \$1,000 a year to be paid to members who head an opposition party that has at least 12 members sitting in the National Assembly or has obtained 20 p.c. of the votes in the whole of the Province of Quebec at the latest general election.

**23.—Twenty-sixth Ministry of Quebec, as at Nov. 26, 1971**

(Party standing at latest General Election, Apr. 29, 1970: 72 Liberal, 17 Union Nationale, 12 Social Credit, 7 Parti Québécois.)

Office	Name	Date of Appointment
Prime Minister and Minister of Intergovernmental Affairs.....	ROBERT BOURASSA.....	May 12, 1970
Minister of Highways, Minister of Public Works and Minister of Transport.....	BERNARD PINARD.....	Nov. 25, 1971
Minister of Industry and Commerce.....	GÉRARD D. LÉVESQUE.....	May 12, 1970
Minister of Tourism, Fish and Game.....	Mme CLAIRE KIRKLAND-CASGRAIN.....	May 12, 1970
Minister of Social Affairs.....	CLAUDE CASTONGUAY.....	May 12, 1970
Minister of Justice.....	JÉRÔME CHOQUETTE.....	May 12, 1970
Minister of Education and responsible for the Office of Youth, Recreation and Sport.....	GUY SAINT-PIERRE.....	May 12, 1970
Minister of Finance.....	RAYMOND GARNEAU.....	May 12, 1970
Minister of Municipal Affairs.....	MAURICE TESSIER.....	May 12, 1970
Minister of Financial Institutions, Companies and Co-operatives.....	WILLIAM TETLEY.....	May 12, 1970
Minister of Agriculture and Colonization.....	NORMAND TOUPIN.....	May 12, 1970
Minister of Natural Resources.....	GILES MASSÉ.....	May 12, 1970
Minister of Lands and Forests.....	KEVIN DRUMMOND.....	May 12, 1970
Minister responsible for the "Office des autoroutes du Québec".....	GEORGES-E. TREMBLAY.....	Nov. 25, 1971
Minister of Cultural Affairs and Minister of Immigration.....	FRANÇOIS CLOUTIER.....	May 12, 1970
Minister of Communications responsible for the "Office Franco-Québécois" and Minister of the Public Service.....	JEAN-PAUL L'ALLIER.....	May 12, 1970
Minister of Revenue.....	GÉRALD HARVEY.....	May 12, 1970
Minister of Labour and Manpower.....	JEAN COURNOYER.....	Feb. 8, 1971
Minister without Portfolio for Intergovernmental Affairs.....	OSWALD PARENT.....	Feb. 11, 1971
Minister without Portfolio, responsible for the environment.....	VICTOR C. GOLDBLOOM.....	May 12, 1970
Minister without Portfolio for Industry and Commerce.....	CLAUDE SIMARD.....	May 12, 1970
Minister without Portfolio for the Office of Economic Development.....	ROBERT QUENNEVILLE.....	Oct. 14, 1971
Solicitor General.....	ROY FOURNIER.....	Feb. 11, 1971
Minister without Portfolio for Finance.....	JEAN BIENVENUE.....	May 3, 1971

**Subsection 6.—Ontario**

The Government of Ontario consists of a Lieutenant-Governor, an Executive Council and a House of Assembly. Lieutenant-Governors from Confederation (1867) to 1959 are cited in the 1960 Year Book, p. 112; since that date the position has been held by the Hon. Justice John Keiller Mackay, appointed effective Dec. 30, 1957, followed by the Hon. William Earl Rowe, appointed effective May 1, 1963, and the Hon. W. Ross Macdonald, appointed effective July 4, 1968.

The House of Assembly, the single-chamber Legislature of the province, is composed of 117 members elected for a statutory term of five years. Prime Ministers from Confederation to 1959 are listed in the 1960 Year Book, p. 112; the Hon. John Parmenter Robarts became Ontario's Prime Minister on Nov. 8, 1961 upon the resignation of the Hon. Leslie M. Frost, Prime Minister from May 4, 1949; the Hon. William Grenville Davis became Prime Minister on Mar. 1, 1971, upon the resignation of Mr. Robarts.

Besides the regular departments of government, the Niagara Parks Commission, the Ontario Municipal Board, The Hydro-Electric Power Commission of Ontario, the Ontario-St. Lawrence Development Commission, the Ontario Northland Transportation Commission, the Liquor Control Board, the Liquor Licence Board, the Hospital Services Commission and The Water Resources Commission are in operation.



# 24.—Legislatures of Ontario, 1955-71, as at Oct. 21, 1971

NOTE.—Legislatures from Confederation to 1923 are given in the 1924 Year Book, p. 79; for 1924-34 in the 1938 edition, p. 114; and for 1935-50 in the 1963-64 edition, p. 87.

Date of Election	Legislature	Number of Sessions	Date of First Opening	Date of Dissolution
Nov. 22, 1951	24th.....	5	Feb. 21, 1952	May 2, 1955
June 9, 1955	25th.....	5	Sept. 8, 1955	May 4, 1959
June 11, 1959	26th.....	4	Jan. 26, 1960	Aug. 16, 1963
Sept. 25, 1963	27th.....	5	Oct. 29, 1963	Sept. 5, 1967
Oct. 17, 1967	28th.....	4	Feb. 14, 1968	Sept. 13, 1971
Oct. 21, 1971	29th.....	1		

<sup>1</sup> 29th Legislature not yet in session on Oct. 21, 1971.

Under the provisions of the Legislative Assembly Act (RSO 1960, c. 208 as amended) each member of the Assembly is paid an annual indemnity of \$12,000 and an allowance for expenses at the rate of \$6,000. In addition, the Speaker receives a special indemnity at the annual rate of \$5,000; the Chairman of the Committee of the Whole a special indemnity at the annual rate of \$4,000; and the Leader of the Opposition a salary of \$15,000 per annum in addition to his indemnity as a member. Each member of the Cabinet having charge of a department receives the ordinary indemnity as a member of the Legislature in addition to his salary as a Minister of the Crown. The salary provided in the Executive Council Act for the Prime Minister is \$20,000 and for a Cabinet Minister having charge of a department, the Minister of the Crown who is a member of The Hydro-Electric Power Commission of Ontario, and the Leader of the Opposition receive a representation allowance of \$2,000 per annum. Each Minister without Portfolio, other than the Minister who is a member of The Hydro-Electric Power Commission, receives \$5,000 salary and \$1,000 representation allowance per annum.

The reader is referred to Appendix I for Table 25 showing the party standing following the General Election of Oct. 21, 1971, and the new Ministry. Results of that election had not been finalized at the time of going to press with this Chapter.

## Subsection 7.—Manitoba

In addition to a Lieutenant-Governor, Manitoba has an Executive Council at present composed of 14 members and a Legislative Assembly of 57 members elected for a statutory term of five years. Lieutenant-Governors from Confederation (1870) to 1959 are cited in the 1960 Year Book, p. 113; since that date, the position has been held by the Hon. Errick F. Willis, sworn in on Jan. 15, 1960, followed by the Hon. Richard S. Bowles, sworn in on Sept. 1, 1965 and the Hon. William John McKeag, appointed July 3, 1970. Premiers since Confederation are listed in the 1960 Year Book, p. 114; the Hon. Dufferin Roblin, who became Premier on June 30, 1958 and remained in office until Nov. 27, 1967, was succeeded by the Hon. Walter Weir who remained in office until July 15, 1969, when the present Premier assumed office.

The Premier of the province is paid a salary of \$16,600 per annum and each of the other members of the Cabinet \$15,600. Members of the Legislature are each paid a sessional indemnity of \$1,800 and a tax-free expense allowance of \$2,400 plus an allowance of \$20 a day for a period of 60 days continuous sitting including Saturdays and Sundays for members outside Metro Winnipeg who have to take board and lodging in Winnipeg during legislative sessions. The Leader of the Opposition is paid \$15,600 and the Speaker of the Legislature receives \$9,600, which is an amount equal to double the indemnity of an individual member.

**26.—Legislatures of Manitoba, 1955-71, as at June 30, 1971**

NOTE.—Legislatures from Confederation to 1923 are given in the 1924 Year Book, p. 80; for 1924-36 in the 1938 edition, p. 115; and for 1937-49 in the 1963-64 edition, p. 88.

Date of Election	Legislature	Number of Sessions	Date of First Opening	Date of Dissolution
June 8, 1953	24th.....	5	Feb. 2, 1954	Apr. 30, 1958
June 16, 1958	25th.....	2	Oct. 23, 1958	Mar. 31, 1959
May 14, 1959	26th.....	5	June 9, 1959	Nov. 9, 1962
Dec. 14, 1962	27th.....	5	Feb. 28, 1963	May 18, 1966
June 23, 1966	28th.....	3	Dec. 5, 1966	May 22, 1969
June 25, 1969	29th.....	1	Aug. 14, 1969	1

<sup>1</sup> Life of Legislature not expired at June 30, 1971.

**27.—Sixteenth Ministry of Manitoba, as at June 30, 1971**

(Party standing at latest General Election, June 25, 1969: 28 New Democratic Party, 22 Progressive Conservative, 4 Liberal, 1 Social Credit, 1 Liberal Democrat and 1 Independent.)

Office	Name	Date of First Appointment	Date of Present Appointment
Premier, President of the Council, Minister charged with the administration of the Manitoba Hydro Act, and Minister of Dominion-Provincial Relations.....	Hon. EDWARD SCHREYER.....	July 15, 1969	July 15, 1969
Minister of Finance and Minister of Urban Affairs.....	Hon. SAUL M. CHERNIACK.....	July 15, 1969	July 15, 1969
Minister of Labour, Railway Commissioner of Manitoba and Minister charged with the administration of the Civil Service Act, the Civil Service Superannuation Act and the Public Servants Insurance Act.....	Hon. RUSSELL PAULLEY.....	July 15, 1969	July 15, 1969
Attorney-General.....	Hon. A. H. MACKLING.....	July 15, 1969	July 15, 1969
Minister of Mines, Resources and Environmental Management and Commissioner of Northern Affairs.....	Hon. SIDNEY GREEN.....	July 15, 1969	Dec. 18, 1969
Minister of Agriculture.....	Hon. SAMUEL USKIW.....	July 15, 1969	July 15, 1969
Minister of Youth and Education.....	Hon. SAUL A. MILLER.....	July 15, 1969	July 15, 1969
Minister of Health and Social Development.....	Hon. RENÉ E. TOUPIN.....	July 15, 1969	Dec. 18, 1969
Minister of Industry and Commerce.....	Hon. LEONARD S. EVANS.....	July 15, 1969	Dec. 18, 1969
Minister of Tourism, Recreation, and Cultural Affairs.....	Hon. PETER BURTNIK.....	July 15, 1969	July 15, 1969
Minister of Public Works and Highways.....	Hon. JOSEPH P. BOROWSKI.....	July 15, 1969	July 15, 1969
Minister of Municipal Affairs.....	Hon. HOWARD R. PAWLEY.....	July 15, 1969	July 15, 1969
Minister of Consumer, Corporate and Internal Services.....	Hon. BEN HANUSCHAK.....	Aug. 20, 1970	Aug. 20, 1970
Minister without Portfolio.....	Hon. RUSSELL DOERN.....	Nov. 4, 1970	Nov. 4, 1970

<sup>1</sup> Resigned Sept. 8, 1971.

**Subsection 8.—Saskatchewan**

The Government of Saskatchewan consists of a Lieutenant-Governor, an Executive Council and a Legislative Assembly. Lieutenant-Governors from Confederation (1905) to 1959 are cited in the 1960 Year Book, p. 115; since that date the office has been held by the Hon. F. L. Bastedo, commissioned to office Jan. 27, 1958, the Hon. Robert L. Hanbidge, commissioned to office Mar. 1, 1963, and the Hon. Stephen Worobetz, commissioned to office Feb. 3, 1970.

The statutory number of members of the Legislative Assembly is 59, elected for a maximum term of five years. Premiers from Confederation to 1959 are listed in the 1960 Year Book, p. 115; the Hon. W. S. Lloyd became Premier in 1961, the Hon. W. Ross Thatcher in 1964 and the Hon. A. E. Blakeney on June 30, 1971.

The Premier receives \$18,500 and each Cabinet Minister \$13,500 annually in addition to a sessional indemnity. The Leader of the Opposition receives \$13,500 plus an office allowance of \$17,500 per annum, the Speaker \$4,500 and the Deputy Speaker \$2,500. The

sessional indemnity of a member of the Legislature is \$6,000 together with an expense allowance of \$3,000. Each of the members for the three northernmost constituencies of Prince Albert East-Cumberland, Athabasca and Meadow Lake receives a \$6,000 sessional indemnity and a \$3,500 expense allowance.

### 28.—Legislatures of Saskatchewan, 1955-71, as at June 30, 1971

NOTE.—Legislatures from Confederation to 1923 are given in the 1924 Year Book, p. 81; for 1924-34 in the 1938 edition, p. 116; and for 1935-48 in the 1963-64 edition, p. 89.

Date of Election	Legislature	Number of Sessions	Date of First Opening	Date of Dissolution
June 11, 1952	12th.....	4	Feb. 12, 1953	Apr. 25, 1956
June 20, 1956	13th.....	4	Feb. 14, 1957	May 4, 1960
June 8, 1960	14th.....	6	Oct. 11, 1960	Mar. 18, 1964
Apr. 22, 1964	15th.....	4	Feb. 4, 1965	Apr. 1, 1967
Oct. 11, 1967	16th.....	5	Feb. 15, 1968	May 25, 1971
June 23, 1971	17th.....	1	1	1

<sup>1</sup> 17th Legislature not yet in session on June 30, 1971.

### 29.—Eleventh Ministry of Saskatchewan, as at July 12, 1971

(Party standing at latest General Election, June 23, 1971: 45 New Democratic Party and 15 Liberal.)

Office	Name	Date of First Appointment	Date of Present Appointment
Premier, President of the Council, Provincial Treasurer and Minister of Industry and Commerce.....	Hon. A. E. BLAKENEY.....	June 30, 1971	{ June 30, 1971 July 9, 1971
Attorney General and Provincial Secretary..	Hon. ROY ROMANOW.....	June 30, 1971	June 30, 1971
Minister of Agriculture.....	Hon. J. R. MESSER.....	June 30, 1971	June 30, 1971
Minister of Public Health.....	Hon. W. E. SMISHEK.....	June 30, 1971	June 30, 1971
Minister of Municipal Affairs and Minister of Public Works.....	Hon. E. I. WOOD.....	June 30, 1971	June 30, 1971
Minister of Welfare and Minister of Labour...	Hon. GORDON SNYDER.....	June 30, 1971	June 30, 1971
Minister of Saskatchewan Indian and Metis Department and Minister of Mineral Resources.....	Hon. G. R. BOWERMAN.....	June 30, 1971	{ June 30, 1971 July 9, 1971
Minister of Education.....	Hon. G. MACMURCHY.....	June 30, 1971	June 30, 1971
Minister of Highways and Transportation and Minister of Telephones.....	Hon. N. E. BYERS.....	June 30, 1971	June 30, 1971
Minister of Natural Resources and Minister of Co-operation and Co-operative Development.....	Hon. E. KRAMER.....	July 9, 1971	July 9, 1971

### Subsection 9.—Alberta

The Government of Alberta is composed of a Lieutenant-Governor, an Executive Council and a Legislative Assembly. Lieutenant-Governors from Confederation (1905) to 1959 are listed in the 1960 Year Book, p. 116; since that date the office has been held by the Hon. J. Percy Page, commissioned to office Dec. 19, 1959, followed by the Hon. J. W. Grant MacEwan, commissioned in January 1966.

There are 75 members in the Legislative Assembly, elected for a maximum period of five years. Premiers from Confederation to 1959 are listed in the 1960 Year Book, p. 117; the Hon. Ernest C. Manning, the Premier at that time, resigned in 1968. The Hon. Harry E. Strom became Premier on Dec. 12, 1968, and the Hon. Peter Lougheed on Sept. 10, 1971.

Each member of the Legislative Assembly (except the Speaker, the Deputy Speaker and the Leader of the Opposition) receives a sessional indemnity of \$4,800 plus \$2,400 expense allowance plus \$15 for each day during the session when the member is necessarily absent from his ordinary place of residence, both tax-free. The Speaker's sessional indemnity is \$8,000 plus \$1,000 expense allowance, the Deputy Speaker's sessional indemnity



is \$6,400 plus \$3,200 expense allowance, and the Leader of the Opposition's sessional indemnity is \$7,200 plus \$3,600 expense allowance. Each also receives \$15 for each day during the session when he is necessarily absent from his ordinary place of residence. The Premier, in addition to the sessional indemnity, receives \$18,000 and each of the other Ministers receives \$15,000.

### 30.—Legislatures of Alberta, 1955-71, as at Aug. 30, 1971

NOTE.—Legislatures from Confederation to 1923 are given in the 1924 Year Book, p. 82; for 1924-34 in the 1938 edition, p. 117; and for 1935-48 in the 1963-64 edition, p. 90.

Date of Election	Legislature	Number of Sessions	Date of First Opening	Date of Dissolution
Aug. 5, 1952	12th.....	3	Feb. 19, 1953	May 12, 1955
June 29, 1955	13th.....	5	Aug. 17, 1955	May 9, 1959
June 18, 1959	14th.....	5	Feb. 11, 1960	May 9, 1963
June 17, 1963	15th.....	5	Feb. 13, 1964	Apr. 14, 1967
May 23, 1967	16th.....	4	Feb. 15, 1968	July 22, 1971
Aug. 30, 1971	17th.....	1	1	1

<sup>1</sup> 17th Legislature not yet in session at Aug. 30, 1971.

### 31.—Tenth Ministry of Alberta, as at Sept. 10, 1971

(Party standing at latest General Election, Aug. 30, 1971: 49 Progressive Conservative, 25 Social Credit and 1 New Democratic Party.)

Office	Name	Date of Appointment
Premier and President of the Executive Council.....	Hon. PETER LOUGHEED.....	Sept. 10, 1971
Minister of Agriculture.....	Hon. HUGH M. HORNER.....	Sept. 10, 1971
Minister of Federal and Intergovernmental Affairs.....	Hon. DONALD R. GETTY.....	Sept. 10, 1971
Minister of Education.....	Hon. LOUIS D. HYNDMAN.....	Sept. 10, 1971
Provincial Treasurer.....	Hon. GORDON T. W. MINIELY.....	Sept. 10, 1971
Attorney General and Provincial Secretary.....	Hon. C. MERVIN LEITCH.....	Sept. 10, 1971
Minister of Health and Social Development.....	Hon. NEIL S. CRAWFORD.....	Sept. 10, 1971
Minister of Labour.....	Hon. ALBERT E. HOHOL.....	Sept. 10, 1971
Minister of Environment.....	Hon. WILLIAM J. YURKO.....	Sept. 10, 1971
Minister of Municipal Affairs.....	Hon. DAVID J. RUSSELL.....	Sept. 10, 1971
Minister of Advanced Education.....	Hon. JAMES L. FOSTER.....	Sept. 10, 1971
Minister of Mines and Minerals.....	Hon. WILLIAM D. DICKIE.....	Sept. 10, 1971
Minister of Telephones.....	Hon. LEONARD F. WERRY.....	Sept. 10, 1971
Minister of Public Works.....	Hon. WINSTON O. BACKUS.....	Sept. 10, 1971
Minister of Industry.....	Hon. FREDERICK H. PEACOCK.....	Sept. 10, 1971
Minister of Highways and Transport.....	Hon. CLARENCE COPITHORNE.....	Sept. 10, 1971
Minister of Lands and Forests.....	Hon. ALLAN A. WARRACK.....	Sept. 10, 1971
Minister of Culture, Youth and Recreation.....	Hon. HORST A. SCHMID.....	Sept. 10, 1971
Minister without Portfolio.....	Hon. W. HELEN HUNLEY.....	Sept. 10, 1971
Minister without Portfolio, responsible for Tourism.....	Hon. ROBERT W. DOWLING.....	Sept. 10, 1971
Minister without Portfolio, responsible for Rural Development.....	Hon. GEORGE TOPOLNISKY.....	Sept. 10, 1971
Minister without Portfolio, responsible for Northern Development.....	Hon. J. ALLEN ADAIR.....	Sept. 10, 1971

### Subsection 10.—British Columbia

The Government of British Columbia has a Lieutenant-Governor, an Executive Council and a Legislative Assembly. Lieutenant-Governors from Confederation (1871) to 1959 are cited in the 1960 Year Book, p. 118; since that date the position has been held by Maj. Gen. the Hon. George Randolph Pearkes, commissioned to office Oct. 12, 1960, followed by Col. the Hon. J. R. Nicholson, commissioned to office on July 2, 1968.

The Legislative Assembly, elected for a statutory term of five years, has 55 members. Premiers from Confederation to 1959 are cited in the 1960 Year Book, p. 118; the present Premier assumed office in 1952.

Each member of the Executive Council and the Legislative Assembly receives a sessional allowance of \$5,000 and \$2,500 for expenses. There is also paid to each member

a living allowance of \$2,000 (based on a per diem rate of \$50, not exceeding 40 days) and each member receives an allowance of 25 cents per mile of the distance between his place of residence and the city of Victoria, reckoning such distance, going and coming, according to the nearest mail route. Each member also receives an allowance of \$500 for telegraph and telephone expenses. In addition, the Premier receives a salary of \$23,000, each member of the Executive Council with a portfolio receives \$20,000 annually and each member of the Executive Council without portfolio receives \$6,500. The Leader of the Opposition receives a special allowance of \$9,000 for expenses, the Speaker receives a special allowance of \$9,000 and the Deputy Speaker a special allowance of \$3,500.

### 32.—Legislatures of British Columbia, 1955-71, as at June 30, 1971

NOTE.—Legislatures from Confederation to 1923 are given in the 1924 Year Book, p. 83; for 1924-37 in the 1938 edition, p. 118; and for 1938-52 in the 1963-64 edition, p. 91.

Date of Election	Legislature	Number of Sessions	Date of First Opening	Date of Dissolution
June 9, 1953	24th.....	4	Sept. 15, 1953	Aug. 13, 1956
Sept. 19, 1956	25th.....	4	Feb. 7, 1957	Aug. 3, 1960
Sept. 12, 1960	26th.....	4	Jan. 26, 1961	Aug. 21, 1963
Sept. 30, 1963	27th.....	3	Jan. 23, 1964	Aug. 5, 1966
Sept. 12, 1966	28th.....	3	Jan. 24, 1967	July 21, 1969
Aug. 27, 1969	29th.....	1	Jan. 22, 1970	<sup>1</sup>

<sup>1</sup> Life of Legislature not expired at June 30, 1971.

### 33.—Twenty-ninth Ministry of British Columbia, as at June 30, 1971

(Party standing at latest General Election, Aug. 27, 1969: 38 Social Credit, 12 New Democratic Party and 5 Liberal.)

Office	Name	Date of First Appointment	Date of Present Appointment
Premier, President of the Council and Minister of Finance.....	HON. WILLIAM ANDREW CECIL BENNETT.....	Aug. 1, 1952	{Aug. 1, 1952 Feb. 15, 1954
Provincial Secretary and Minister of Highways.....	HON. WESLEY DREWETT BLACK..	Aug. 1, 1952	{Aug. 1, 1952 Apr. 25, 1968
Attorney-General.....	HON. LESLIE RAYMOND PETERSON.....	Sept. 27, 1956	Nov. 23, 1960
Minister of Lands, Forests, and Water Resources.....	HON. RAY GILLIS WILLISTON.....	Apr. 14, 1954	Mar. 30, 1962
Minister of Agriculture.....	HON. CYRIL MORLEY SHELFORD..	May 27, 1968	May 27, 1968
Minister of Mines and Petroleum Resources and Minister of Commercial Transport....	HON. FRANCIS XAVIER RICHTER..	Nov. 28, 1960	{May 27, 1968 May 27, 1968
Minister of Labour.....	HON. JAMES ROLAND CHABOT....	Apr. 2, 1971	Apr. 2, 1971
Minister of Industrial Development, Trade, and Commerce.....	HON. WALDO McTAVISH SKILLINGS	Apr. 25, 1968	Apr. 25, 1968
Minister of Education.....	HON. DONALD LESLIE BROTHERS..	Mar. 20, 1964	May 27, 1968
Minister of Municipal Affairs.....	HON. DANIEL ROBERT JOHN CAMPBELL.....	Mar. 20, 1964	Mar. 20, 1964
Minister of Health Services and Hospital Insurance.....	HON. RALPH RAYMOND LOFFMARK	Mar. 20, 1964	Apr. 25, 1968
Minister of Public Works.....	HON. WILLIAM NEELANDS CHANT..	Mar. 15, 1955	Mar. 15, 1955
Minister of Recreation and Conservation and Minister of Travel Industry.....	HON. WILLIAM KENNETH KIERNAN	Aug. 1, 1952	{Mar. 20, 1964 Mar. 23, 1967
Minister of Rehabilitation and Social Improvement.....	HON. PHILIP ARTHUR GAGLARDI..	Aug. 1, 1952	Oct. 27, 1969
Member of the Executive Council without Portfolio.....	HON. ISABEL PEARL DAWSON.....	Dec. 12, 1966	Dec. 12, 1966
Member of the Executive Council without Portfolio.....	HON. PATRICIA JANE JORDAN.....	Dec. 12, 1966	Dec. 12, 1966
Member of the Executive Council without Portfolio.....	HON. GRACE MCCARTHY.....	Dec. 12, 1966	Dec. 12, 1966

### Subsection 11.—Yukon Territory and Northwest Territories

#### Yukon Territory\*

The Yukon was established as a separate territory in 1898 to meet a need for local government created by the influx of miners during the gold-rush period. The Yukon Territory Act provided for a Commissioner and a Council of not more than six, all appointed by the Governor in Council. The Commissioner in Council was given legislative powers comparable to those held by the Lieutenant-Governor and the Legislative Assembly of the Northwest Territories. By 1902, five elected councillors had been added and in 1908 a fully elected Council of ten members was introduced. A population decline following the end of the gold rush was accelerated by enlistment during World War I and in 1919 the Council was reduced to three elected members. This remained the level of government until after World War II when population and economic activity again showed an increase, beginning with the building of the Alaska Highway. In 1960, the Council was increased to seven elected members and provision was made for the appointment of an Advisory Committee on Finance.

**Basic Legislation.**—A principal feature of territorial government is its very close constitutional and working relationship with the Government of Canada. Although the provinces and the Federal Government each has jurisdiction and powers allocated by the British North America Act, the authority of the Territorial Government is allocated only by federal legislation. The Yukon Act prescribes the structure of the executive, legislative and judicial branches of the Territorial Government and the scope of their authority; all residual matters remain under federal control. The Territory has fully representative but not responsible government. Under authority of the Act, Whitehorse, the single large community in the Territory, was designated as the seat of government in 1953.

The Government Organization Act, 1966, which describes the responsibilities of the Department of Indian Affairs and Northern Development for the development of Northern Canada, is the other piece of basic legislation under which the Territorial Government operates. The Minister is responsible for the management of the natural resources (except game) and for the development of the North generally. Although he shares authority with the Governor in Council for directing the Commissioner in his duties, he is the effective link between the Territorial and Federal Governments.

**The Executive.**—The executive side of the Territorial Government is headed by a Commissioner appointed by the Federal Government. He is directed to administer the Government of the Territory under instruction from the Governor in Council or the Minister of Indian Affairs and Northern Development. In practice, the Commissioner is much more responsive to the wishes of his elected Council than the Yukon Act implies and he cannot spend any territorial funds which have not been voted by Council. There is also a growing body of other territorial legislation (Ordinances) on which the Commissioner is required to obtain Council approval for specific actions; actually, he never acts on any major issue without consulting Council.

Because the Commissioner does not sit with Council, an amendment was made to the Yukon Act in 1960 to bridge the gap between the executive and legislative functions of government at Council Sessions. This amendment provided for the formation of an Advisory Committee on Finance to be composed of three members of Council appointed by the Commissioner on the advice of Council. Another step to bring the executive and legislative functions of government in closer harmony was the formation in November 1970 of an Executive Committee consisting of the Commissioner as Chairman and four members, the Assistant Commissioner (Executive) and Administrator of the Yukon Territory as Vice-Chairman, the Assistant Commissioner (Administrative) and two members of Council to

\* Revised under the direction of the Commissioner of the Yukon Territory, Whitehorse.



be appointed by the Commissioner upon the recommendation of the Territorial Council. The Executive Committee was duly sworn in and took office in December 1970. The two Council members on the Executive Committee are also members of the Advisory Committee on Finance, leaving the third member to be appointed by Council. As part of their administrative duties, one elected member has been given responsibility for the Department of Education and the other for the Department of Health, Welfare and Rehabilitation.

Below the Commissioner's office, the Territorial Public Service is organized into ten conventional administrative departments under the direction of the Commissioner; all are located in Whitehorse. Territorial Government administration is represented in outlying communities by a limited number of territorial agents who are concerned mainly with the sale of liquor and licences but most territorial services are administered from Whitehorse. Health facilities are administered mainly by the federal Department of Health and Welfare. Federal involvement in the operation of health services in the Territory stems from its responsibility for Indians and from practical administrative considerations. All schools are under the direction of the Territorial Department of Education with headquarters in Whitehorse. The Territorial Government has well-developed engineering and welfare services. The Territorial Public Service numbers about 1,000 persons, including some 265 school teachers and vocational school instructors.

Some administrative areas such as natural resources, which are the responsibility of the Department of Indian Affairs and Northern Development, are administered by federal public servants. The Commissioner, in addition to his territorial role, is also the Department's senior federal representative in the Territory. The Minister of Justice is the Attorney General of the Territory for purposes of the Criminal Code of Canada, with responsibility for the administration of criminal justice in the Territory but not for civil matters or the constitution or organization of the courts. Law enforcement is provided by the Royal Canadian Mounted Police and the contract for its services is negotiated by the Territorial Government.

**The Court System.**—On Apr. 1, 1971, amendments to the Yukon Act were promulgated into force simultaneously with certain Ordinances of the Yukon Territory allowing the Yukon Territorial Government to assume the administration of justice. Ordinances coming into force that day provided for a Territorial Court, a Magistrate's Court, justices of the peace and a court of appeal. The Territorial Court consists of a single judge of superior court rank and of the Magistrate's Court (one magistrate). Both are located in Whitehorse, although from time to time Magistrate's Court sittings are held in other communities. There are 32 justices of the peace, appointed by the Commissioner, located at 15 points in the Territory. The Judge of the Territorial Court of the Northwest Territories is *ex officio* Judge in the Yukon Territory and vice versa. The Court of Appeal consists of the Chief Justices of British Columbia, the Justices of Appeal of British Columbia and the Judge of the Territorial Court of the Northwest Territories.

**The Legislature.**—The Legislative Council consists of seven members elected for a term of four years. Three of the members represent electoral districts located in or close to Whitehorse where about half of the some 20,000 residents of the Territory live. As in many other matters, a federal agency (Chief Electoral Officer) conducts the territorial elections as a free service to the Territory. Council normally meets in session twice each year. The first session commences in January and has as a major part of its work the voting of the main territorial estimates which have been prepared by the Commissioner and agreed to by its Advisory Committee on Finance and the Minister. The second session is usually called in November and special sessions can be held at any time. Main sessions last from

one to two months and the debates are recorded verbatim and published under the title of Votes and Proceedings. The Commissioner calls Council into session and prorogues it; he sits with it only by invitation to explain or defend a proposed expenditure, draft legislation or policy papers which he has placed before Council. All sessions are presided over by a Speaker who is appointed by Council from among its members for the duration of each Council but is given no specific responsibilities or authority under the Yukon Act. In practice, he conducts Council proceedings under Rules of Council which are an adaptation of Canadian parliamentary procedures. A Clerk of Council controls the administrative side of its proceedings.

The matters on which Council can legislate are not significantly fewer than those enjoyed by the provinces. The main exceptions concern natural resources. These are a responsibility of the Federal Government which has to provide the heavy investments in transportation and other facilities needed to bring them into production. Most major policy matters are first placed before Council in the form of a Sessional Paper prepared by the Commissioner, and the draft legislation is then presented at the next session in the form of a Bill, although amendments to existing legislation may be processed concurrently with the Sessional Paper or without the assistance of this background information. Discussion is conducted usually with the Council resolved into Committee of the Whole when the Commissioner, heads of departments and outside specialists appear to give detailed information and advice on the subject concerned. Bills are given three readings and require the assent of the Commissioner before they become law as Ordinances of the Territory. The Commissioner can reserve assent to legislation but rarely does so. As with provincial legislation, the Federal Government may disallow any Ordinance but within a period of one year. New Ordinances are published after each session; Consolidated Ordinances of the Yukon Territory are usually revised every ten years.

**The Role of the Federal Government.**—Direct federal involvement in the affairs of the Territorial Government extends from control of its constitution to responsibility for the operation of certain provincial-type services and for providing most of its finances. The constitutional arrangement has been described above, as have such federally operated provincial-type services as justice and law enforcement and the health services. Beyond these special services, the Federal Government provides the usual range of national services such as the operation of Canadian Broadcasting Corporation radio stations, mail delivery and mainline airports. Full assistance under all national welfare programs is available in the Territory. Even with special financial assistance in many particular areas, the low volume of local revenues falls far short of meeting the high cost of services provided by the Territorial Government. The Federal Government picks up this financial deficit through annual fiscal arrangements known as Federal-Territorial Financial Agreements. The amount of federal financial assistance given to the Territorial Government is simply the difference between the forecast of revenues available to the Territorial Government and the forecast of the cost of a reasonable level of services to be provided by that Government. In the process, the Territorial Government forgoes its authority to tax private and corporate incomes and to collect other corporation taxes and succession duties.

Setting aside special accounts such as housing loans and amortization of borrowings from the Federal Government for which individual arrangements are made, the Yukon Government in the year ended Mar. 31, 1971 spent \$16,098,612 on operational account and another \$7,265,414 on capital account. Of the total expenditure, the Territorial Government raised \$5,534,183 locally and recovered another \$5,299,666 from the Federal Government via shared-cost programs. The remainder was provided by the Federal Government under its financial agreement with the Territory.

## COMMISSIONER, COUNCIL AND COUNCIL STAFF OF THE YUKON TERRITORY

(As at June 30, 1971; Members of the Council were elected Sept. 8, 1970)

<b>Commissioner</b> .....	J. SMITH
<b>Executive Committee—</b>	
Chairman.....	J. SMITH
Vice-Chairman and Member.....	R. A. HODGKINSON
Member.....	G. K. FLEMING
Member.....	HILDA WATSON
Member.....	NORMAN S. CHAMBERLIST
<b>Members of the Council—</b>	
Carmacks-Kluane.....	HILDA WATSON
Dawson.....	MIKE STUTTER
Watson Lake.....	DONALD E. TAYLOR
Mayo.....	RONALD A. RIVETT
Whitehorse East.....	NORMAN S. CHAMBERLIST
Whitehorse North.....	CLIVE TANNER
Whitehorse South.....	JOHN KENNETH MCKINNON
<b>Officers of the Council—</b>	
Clerk of the Council.....	C. W. PEARSON
Legal Adviser.....	P. O'DONOGHUE

**Northwest Territories\***

The Temporary Government Act of 1869 was the first legislation by the Federal Government to establish government in the newly acquired Rupert's Land and North-Western Territory. However, functional territorial government really dates from the North-West Territories Act of 1875. The creation of the Provinces of Saskatchewan and Alberta in 1905 and the adjustment of the northern boundaries of the Provinces of Manitoba, Ontario and Quebec by 1912 pushed the Territories north of the 60th parallel. The 1905 legislation provided for a federally appointed Commissioner with wide executive and legislative powers and a Council of four but no Councillors were appointed for 16 years. In 1921 the Council was expanded to six members and, until 1946 when the first territorial resident was appointed, it was comprised entirely of senior federal officials.

Defence early warning systems, radio and greatly improved air transportation after World War II ended the extreme isolation of the North and pressures for improved territorial government soon followed. Legislative changes in 1951 and 1952 increased Council membership to eight, three of them elected from the Mackenzie District. A fourth was added in 1954. At least two Council sessions were required to be held in a year; one in the Territories and all others at the seat of government in Ottawa. The subjects on which the Commissioner in Council could legislate were increased to approximate those of the provincial legislatures except that natural resources (other than game) were reserved to the Federal Government. A Territorial Court was established.

**Recent Constitutional Developments.**—The quickening of federal interest in the North in the 1950s and 1960s stimulated concern and effort to arrange for a resident territorial government and to chart the course of its future development. An amendment to the Northwest Territories Act in 1966 created three new electoral districts in the Eastern Arctic and, for the first time, gave elected representation to all residents of the Territories. Also, at the ensuing election the first Eskimo was elected to the Territorial Council. A separate consolidated revenue fund was set up for the Territorial Government and wider powers in other areas of financial administration were introduced.

Meanwhile, in 1965, the Federal Government had appointed an Advisory Commission on the Development of Government in the Northwest Territories which travelled widely

\* Revised by the Commissioner of the Northwest Territories, Yellowknife.



in the North to examine into the local needs for change. Following receipt of its recommendations in 1966, the Federal Government acted quickly to provide for a territorial administration resident in the Territories. Yellowknife was designated as the seat of territorial government. In June 1970, the Federal Government passed amendments to the Northwest Territories Act which increased the number of elected Council members from seven to 10 and decreased the number of appointed members from five to four. The amendments also extended the life of Council from three to four years; permitted Council to set its own indemnities and to establish the voting age in territorial elections, and reduced the period of federal disallowance of Territorial Ordinances from two years to one.

**Changes in Territorial Administration.**—Unlike the Yukon Territory which has had its own public service since the turn of the century, the Government of the Northwest Territories, until recently, has been largely dependent upon the Federal Government for staff to implement its legislation and to operate its public services. Until 1963, the Deputy Minister of Northern Affairs (now Indian Affairs and Northern Development) was Commissioner, and the Northern Administration Branch of that Department was devoted to operating most government services in the Northwest Territories with federal public servants. In that year, a full-time Commissioner was appointed and charged with building up a territorial administration located initially in Ottawa but to move into the Territories as soon as possible and in September 1967 the Commissioner and his staff of about 50 persons moved to Yellowknife and immediately assumed responsibility for the operation of the liquor system (already staffed by territorial contract employees), for the game management service, for municipal affairs and for the issuing of all licences and the collecting of taxes. Operational responsibility for other government services was transferred from federal to territorial control in the Mackenzie District on Apr. 1, 1969, and in the Eastern Arctic on Apr. 1, 1970. The Territorial Government is structured to carry out its administration through seven line and three service departments, each under the direction of a senior public servant reporting to the Executive which consists of the Commissioner, the Deputy Commissioner and the Assistant Commissioner. The field staff is organized into four regions with Regional Directors at Fort Smith, Inuvik, Frobisher Bay and Churchill.

**Present Government Structure.**—The Northwest Territories Act, 1952, as amended, provides for an executive, legislative and judicial structure. The Commissioner is the chief executive officer. He is appointed by the Federal Government and is responsible for the administration of the Territories under the direction of the Minister of Indian Affairs and Northern Development. In practice, all major policy decisions are taken on the advice of this Council. The Commissioner can spend funds only to the extent voted by Council and all new revenue measures are subject to the approval of Council. Normally, the Commissioner obtains prior federal approval of proposed legislative and budgetary measures before submitting them to Council.

The Council of the Northwest Territories consists of 10 elected and four appointed members and has a life of four years. It meets at least twice a year, usually for a period of three weeks, but more often if required. The Commissioner presides over Council in Session and the Deputy Commissioner sits as an appointed member. A Clerk of Council and a Legal Adviser provide the main administrative assistance and debates are recorded verbatim.

The Northwest Territories Act gives the Territorial Council authority to legislate in most "provincial" areas of government activity except for natural resources (other than game); these are reserved to the Federal Government which alone can provide the necessary development funds. Legislation (Ordinances) must receive three readings and have the assent of the Commissioner; he can reserve assent but this is a rare occurrence and the Federal Government may disallow any ordinance within one year. The Commissioner proposes most legislation but private members' Bills are allowed except for money

matters which are the prerogative of the Commissioner. Besides draft legislation, the Council gives considerable time to policy papers in which the Commissioner asks for advice or seeks authority to take a particular course of action.

The court system in the Territories consists of a superior court called the Territorial Court of the Northwest Territories, presided over by one judge who is located in Yellowknife. The Court of Appeal of the Territories consists of the Justices of Appeal of Alberta and the Judges of the Yukon and Northwest Territorial Courts. There are also two full-time magistrates appointed by the Commissioner who have jurisdiction similar to provincial judges and a number of justices of the peace also appointed by the Commissioner serve in widely scattered settlements in the Territories.

The Minister of Justice is the Attorney General of the Territories under the Criminal Code, with responsibility for the criminal administration of justice but not for civil matters or the constitution or organization of the courts. Law enforcement is provided by the Royal Canadian Mounted Police.

**Continuing Federal Responsibility.**—The Government Organization Act, 1966 charges the Minister of Indian Affairs and Northern Development with responsibility for the development of the North and for the general co-ordination of federal activities in the area. His responsibilities for the Territorial Government through the Northwest Territories Act have been described as has the operation of government services by the staff of his Department. Other Federal Government agencies, such as the Northern Health Service of the Department of National Health and Welfare and the Royal Canadian Mounted Police, are responsible for health and police services with the Territorial Government sharing their costs. The Ministry of Transport operates mainline airports throughout the whole of the North and the Canadian Broadcasting Corporation provides special shortwave northern broadcasts and maintains a growing number of local stations in the Territories. Federal cost-shared national assistance programs, within the competence of the Territorial Government, are available to it on the same conditions as to the provinces.

There are about 7,000 Indians and 12,300 Eskimos in the Northwest Territories for whom the Federal Government has a special responsibility. Although there are no Indian reserves in the Territories, two treaties were entered into which established certain claims to land and certain other rights. As in the provinces, legislative authority with respect to Indians and lands reserved for Indians is vested exclusively in the Federal Government and this authority extends to Eskimos.

Extensive financial assistance is given to the Territorial Government under special federal-territorial agreements, usually spanning a period of five years. These agreements serve both to allocate the financial responsibility of each government for the provision of services in the Territories and to fix the amount of the federal financial payments to the Territorial Government for the life of the agreement. At the present stage of development, territorial revenues fall far short of meeting the expenditures of the Territorial Government. Under the financial agreements, all taxes on personal and corporate incomes, corporation taxes and succession duties are reserved to the Federal Government.

Excluding amortization of borrowings, the Territorial Government, during the year ended Mar. 31, 1971, spent about \$58,600,000 on operating accounts and about \$13,900,000 on capital projects. Of these expenditures, approximately \$6,000,000 was raised within the Territories through taxes, licences and liquor revenues and \$13,600,000 was recovered from residents of the Territories for services supplied. A further \$3,300,000 was recovered under federal shared-cost programs. The remainder was provided by the Federal Government as special operating grants and loans under the financial agreement and under the special arrangements relating to the move to the seat of government in Yellowknife.

## COMMISSIONER, COUNCIL AND COUNCIL STAFF OF THE NORTHWEST TERRITORIES

(As at June 30, 1971; the latest General Election was held on Dec. 21, 1970)

<b>Commissioner</b> .....	S. M. HODGSON
<b>Deputy Commissioner</b> .....	J. H. PARKER
<b>Members of the Council—</b>	
Appointed.....	J. H. PARKER HUGH CAMPBELL LOUIS-EDMOND HAMELIN LÉO GÉRARD LEMIEUX
Elected—	
Central Arctic.....	LENA PEDERSEN
Eastern Arctic.....	BRYAN PEARSON
Great Slave North.....	JIMMY RABESCA
Great Slave South.....	PAUL W. KAESER
High Arctic.....	WELLAND WILFRED PHIPPS
Keewatin.....	WILLIE ADAMS
Lower Mackenzie.....	LYLE R. TRIMBLE
Mackenzie Liard.....	NICK G. SIBBESTON
Western Arctic.....	TOM BUTTERS
Yellowknife.....	DAVID SEARLE
<b>Officers of the Council—</b>	
Clerk.....	W. H. REMNANT
Legal Adviser.....	F. G. SMITH

## Section 3.—Local Government\*

Local government in Canada comprises all government entities created by the provinces and territories to provide services that can be more effectively discharged through control at the local level. Broadly speaking, local government services are identified in terms of nine main functions—protection, transportation, environmental health, public health, welfare, environmental development, recreation, community services and education. In addition, local government, through the medium of government enterprises, may operate such facilities as public transit and the supply of electricity and gas. Education is normally administered separately from the other local functions (see Chapter VII).

Many local government organizations antedate Confederation but under the British North America Act local government was made a responsibility of the provincial legislatures, a responsibility subsequently extended to the territories when their governments were constituted in the present forms. The unit of local government, apart from the school board, is usually the municipality which is incorporated as a city, town, village, township or other designation depending on the province. The powers and responsibilities of municipalities are those delegated to them by statutes passed by their respective provincial or territorial legislatures. Some of these statutes apply to all municipalities within a province, some to a certain type or group, and many to one municipality only.

Rapid and continuing urbanization during the past two decades and the demand for services in rural areas comparable to those obtainable in urban areas have placed great strains on local government. These strains have been aggravated by the inelasticity of the major local revenue source—the taxation of real property; at the same time, the small populations of most municipalities have hindered attempts to provide services that require economies of scale for efficient operation.

The provinces have taken a number of steps to assist local governments to meet these challenges. An increasing number of special agencies or joint boards and commissions have been created to provide certain services for groupings of municipalities. Local government revenue has been supplemented by grants from the provinces, either made unconditionally

\* Prepared in the Governments Division, Financial Statistics Branch, Statistics Canada.



or for specific purposes. Certain functions traditionally assigned to local government have been assumed in whole or in part by the provinces. Besides encouraging the amalgamation of small units, the provinces have also established new levels of local government to provide services which can be better discharged at a regional level. "Second-tier" local governments now cover the whole of British Columbia and are planned for all of Ontario, where five now exist, and for Quebec, where three have been established. Reorganization of the only other local government of this type—the Metropolitan Corporation of Greater Winnipeg—appears likely during 1971 or 1972.

The major local revenue source available to local government is the taxation of real property, supplemented in varying degrees by taxation of personal property, business and amusement taxes, or sales taxes on specific commodities. Revenue is also derived from licences, permits, rents, concessions, franchises, fines and surplus funds from municipal enterprises.

Since a description of all forms of local government would be too complex for easy comprehension, the following paragraphs describe only municipal organization in each province and in the territories as at Jan. 1, 1971. Tables 34 and 35 give the total number of each type of municipality in each province and territory as well as numbers in each metropolitan area.

**Newfoundland.**—At Jan. 1, 1971, Newfoundland had 218 incorporated areas comprising two cities, 73 towns, five rural districts, 35 local improvement districts, 102 local government communities and one metropolitan area. The towns, rural districts and local improvement districts operate under the Local Government Act; towns and rural districts have elected councils and local improvement districts have appointed trustees. Local government communities are established under the Community Councils Act in the smaller settlements and have limited powers and functions. The St. John's Metropolitan Area, incorporated under a special Act, covers the area adjoining and surrounding the city of St. John's and the town of Mount Pearl and is similar in organization to a local improvement district. There are no rural municipalities in the usual sense. Only about one fifth of 1 p.c. of the total area is municipally organized. Municipalities are supervised by the Department of Municipal Affairs and Housing.

**Prince Edward Island.**—In this province, one city and seven towns have been incorporated under special Acts and 24 villages have been established under the Village Services Act. There is no municipal organization for the remainder of the province, although it is divided into three counties which are subdivided into school sections having elected school boards. The organized municipalities are administered by the Department of Community Services.

**Nova Scotia.**—This province is geographically divided into 18 counties; 12 of these constitute separate municipalities and the remaining six are divided into two districts or municipalities, making a total of 24 rural municipalities. Within and under the jurisdiction of these municipalities there are 25 incorporated villages that provide limited services. In addition, there are three cities operating under special charters and special legislation and 38 towns operating under the Town Incorporation Act. Although geographically located within counties or districts, cities and towns are entirely independent of them except as to joint expenditures. There is no part of the province that is not municipally organized. Supervision of municipalities is exercised through the Department of Municipal Affairs.

**New Brunswick.**—In 1967, the New Brunswick Government assumed direct responsibility for justice, health, welfare and education and fully reorganized the municipal system. The municipal organization is now comprised of six cities, 21 towns and 94 villages. The remainder of the province is not municipally organized and is administered by the provincial government. There are 160 unincorporated local service districts established

to provide services that are municipal in nature but these are administered by the Department of Municipal Affairs and are not municipal organizations. Municipalities are supervised by the Department of Municipal Affairs.

**Quebec.**—The more thickly settled areas of Quebec, comprising about one third of the area of the province, are municipally organized; the remainder is governed by the province as "territories". The organized area is divided into 74 county municipalities which look after matters of general interest within the county. Cities and towns are excluded from the county system for political and administrative purposes except for certain joint expenditures. The remaining municipal corporations and the unorganized territory within counties fall under the county system. The counties have no direct powers of taxation. Funds to finance the services falling within their jurisdiction are provided by the municipalities forming part thereof. The municipalities are governed by Special Charter, by the Cities and Towns Act or by the Municipal Code. On Jan. 1, 1971, there were 1,599 municipalities, divided as follows: 67 cities, 195 towns, 285 villages, 507 parishes, 157 townships, 13 united townships and 375 municipalities without designation. There have been several attempts by the province during recent years to consolidate municipalities, the most notable example being the fusion in 1965 of 14 municipalities on Île Jésus to form the city of Laval. At the beginning of 1970, the Montreal and Quebec Urban Communities and the Outaouais Regional Community were established in which integration of services will be staged gradually. The supervision and assistance of municipalities is through the Department of Municipal Affairs and the Quebec Municipal Commission.

**Ontario.**—Slightly more than one tenth of Ontario's area is municipally organized (which includes 95 p.c. of its total population) and the remainder is governed entirely by the provincial government. The settled section of the province is divided into one metropolitan municipality, three regional municipalities, one district municipality and 34 counties. In addition, there are 34 cities, six separated towns, five boroughs, 146 towns, 144 villages, 531 townships and 16 improvement districts. The Municipality of Metropolitan Toronto, in existence since Jan. 1, 1954, encompasses one city and five boroughs, and is responsible for assessments, police, water supply, sewerage, metropolitan road systems, planning, etc. The regional municipalities of Ottawa-Carleton, York, and Niagara have replaced the county administrations in their respective areas and assumed certain responsibilities over all the municipalities within their boundaries. The District Municipality of Muskoka was incorporated on Jan. 1, 1971 to assume responsibilities, similar to those of the regional municipalities, over the reorganized municipalities of the former district of Muskoka. This form of regional government in Ontario is also contemplated in other areas. Each county, although an incorporated municipality, is comprised of the towns (with the exception of six separated towns), villages and townships situated within it. Some municipalities are located outside the counties in areas called districts. These districts are in the western and northern parts of Ontario and are not municipal entities. Supervisory control of municipalities is exercised by the Department of Municipal Affairs and the Ontario Municipal Board under the Municipal Act and other Acts governing aspects of municipal government.

**Manitoba.**—Manitoba has one metropolitan municipality, 11 cities, 34 towns, 41 villages and 109 rural municipalities supervised by the Department of Urban Development and Municipal Affairs under the Municipal Act and special charters. The Metropolitan Corporation of Greater Winnipeg has been in existence since 1960 and 12 municipalities are within its boundaries. It is responsible for such services as planning, assessments, sewage disposal, water supply, etc. There are 18 local government districts incorporated under the Local Government Districts Act where the province has placed a resident administrator to carry out the functions of a municipal council. The unorganized areas are the direct responsibility of the provincial government.

**Saskatchewan.**—All municipalities in Saskatchewan derive their powers from general Acts that are designated with the name of the type of municipality. There are 11 cities, 131 towns, 358 villages and 292 rural municipalities. The area so organized consists of most of the southern part of the province, the remainder of this portion being administered by the province through nine unincorporated local improvement districts. The northern part is sparsely populated and some municipal services are provided by the province through the operation of the Northern Administration District. Municipalities are supervised by the Department of Municipal Affairs.

**Alberta.**—This province has an Act applying to each type of municipality and, under these Acts, the Department of Municipal Affairs supervises the nine cities, 101 towns, 168 villages, 18 municipal districts and 30 counties. The counties administer schools in addition to municipal functions. There are 24 improvement districts administered directly by the Department of Municipal Affairs and three special areas under the Special Areas Board also responsible to the Department of Municipal Affairs.

**34.—Number of Municipalities in Canada classified by Type and Size, by Province, as at Jan. 1, 1971**

Type and Size Group	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Canada
<b>Type</b>													
<b>Regional Municipalities</b> .....	—	—	—	—	77	39	1	—	—	28	—	—	145
Metropolitan and Regional Municipalities <sup>1</sup> .....	—	—	—	—	3	5	1	—	—	—	—	—	9
Counties and Regional Districts	—	—	—	—	74	34	—	—	—	28	—	—	136
<b>Unitary Municipalities</b> .....	80	32	65	121	1,599	866	195	792	326	140	3	4	4,223
Cities.....	2	1	3	6	67	39 <sup>2</sup>	11	11	9	31	2	1	183
Towns.....	78 <sup>3</sup>	7	38	21	195	152	34	131	101	14	—	3	774
Villages.....	—	24	—	94	285	144	41	358	168	56	1	—	1,171
Rural Municipalities <sup>4</sup> .....	—	—	24	—	1,052	531	109	292	48	39	—	—	2,095
<b>Quasi-Municipalities<sup>5</sup></b> .....	138	—	—	—	—	16	18	9	24	—	3	3	211
<b>Totals</b> .....	218	32	65	121	1,676	921	214	801	350	168	6	7	4,579
<b>Population Size Group (1966 Census)</b>													
<b>Unitary Municipalities</b> —	—	—	1	—	3	9	1	2	2	2	—	—	20
Over 100,000.....	1	—	2	1	7	16	1	—	—	4	—	—	32
50,000 to 99,999.....	1	2	16	6	72	57	10	5	9	25	—	—	203
10,000 to 49,999.....	78	30	46	114	1,517	784	183	785	315	109	3	4	3,968
Under 10,000.....	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Totals</b> .....	80	32	65	121	1,599	866	195	792	326	140	3	4	4,223

<sup>1</sup> Includes urban communities in Quebec; Metropolitan Toronto, regional municipalities and the district municipality in Ontario; and Greater Winnipeg in Manitoba. <sup>2</sup> Includes the five boroughs of Metropolitan Toronto.

<sup>3</sup> Includes five rural districts. <sup>4</sup> Includes municipalities in Nova Scotia; parishes, townships, united townships and municipalities in Quebec; townships in Ontario; rural municipalities in Manitoba and Saskatchewan; municipal districts and counties in Alberta; and districts in British Columbia.

<sup>5</sup> Includes local government communities, local improvement districts and the metropolitan area in Newfoundland; improvement districts in Ontario and Alberta; local government districts in Manitoba; local improvement districts in Saskatchewan and Yukon Territory; and hamlets in the Northwest Territories.



**British Columbia.**—In 1967, the Government of British Columbia instituted regional government in the province and by Jan. 1, 1970, 28 regional districts had been established. These regional districts are developing and are assuming responsibility for certain services from municipalities within their boundaries as well as providing services to previously unorganized areas. There are 31 cities, 14 towns, 56 villages and 39 districts. Districts are mostly rural although there are some adjacent to the principal cities of Vancouver and Victoria that are largely urban in character. Municipalities are supervised by the Department of Municipal Affairs. In addition, there are unincorporated local districts supervised by the Department of Lands, Forests, and Water Resources that have been set up to provide certain municipal services such as protection, waterworks, irrigation, etc.

**Yukon and Northwest Territories.**—In the Yukon Territory, there are two cities, one village and three local improvement districts and in the Northwest Territories, there are one city, three towns and three hamlets. The local improvement districts in the Yukon and the hamlets in the Northwest Territories, although incorporated, are developmental forms of local government. Supervision of these municipalities is provided by the Departments of Local Government of the respective Territorial Governments.

### 35.—Number of Municipalities in Metropolitan Areas, by Type, as at Jan. 1, 1971

Metropolitan Area <sup>1</sup>	Metropolitan and Regional Municipalities	Cities and Boroughs	Towns	Villages	Other	Total
St. John's, Nfld.....	—	1	1	—	4	6
Halifax, N.S.....	—	2	—	—	1	3
Saint John, N.B.....	—	1	1	8	—	10
Quebec, Que.....	1	10	12	2	11	36
Chicoutimi-Jonquière, Que.....	—	5	3	1	3	12
Montreal, Que.....	1	23	51	7	21	103
Ottawa-Hull, Ont.-Que.....	2	3	5	6	11	27
Toronto, Ont.....	2	6	16	3	9	36
Hamilton, Ont.....	—	1	4	1	6	12
Niagara-St. Catharines, Ont.....	1	4	4	—	—	9
Kitchener, Ont.....	—	3	2	—	—	5
London, Ont.....	—	2	—	2	6	9
Windsor, Ont.....	—	1	4	1	6	12
Sudbury, Ont.....	—	1	3	—	6	10
Thunder Bay, Ont.....	—	1	—	—	2	3
Winnipeg, Man.....	1	7	1	—	6	15
Regina, Sask.....	—	1	—	—	1	2
Saskatoon, Sask.....	—	1	—	—	1	2
Edmonton, Alta.....	—	1	3	3	2	9
Calgary, Alta.....	—	1	—	—	—	1
Vancouver, B.C.....	—	6	—	1	8	15
Victoria, B.C.....	—	1	1	5	—	7

<sup>1</sup> The boundaries of the Metropolitan Areas are those defined by the Census Division, Statistics Canada, for the 1971 Census.

## PART III.—ADMINISTRATIVE FUNCTIONS OF THE FEDERAL GOVERNMENT

### Section 1.—Financial Administration

The financial affairs of the Government of Canada are administered and controlled under the fundamental principles that no tax shall be imposed and no money shall be spent without the authority of Parliament and that expenditures shall be made only for the purposes authorized by Parliament. The most important constitutional provisions relating to Parliament's control of finances are contained in the British North America Act; this Act provides that all federal taxing and appropriating measures must originate in the House of Commons and all requests for grants must come from the Crown through re-

sponsible Ministers, and for such requests the Government is solely responsible. In practice, financial control is exercised through a budgetary system based on the principle that all the financial needs of the Government for each fiscal year be considered at one time so that both the current condition and the prospective condition of the public treasury are clearly in evidence.

**Estimates and Appropriations.**—The co-ordination of the Estimates process is carried out by the Treasury Board. This Board is a separate department of government, its Minister having the designation of President of the Treasury Board. In addition to the President, the Board consists of the Minister of Finance, and four other Privy Counsellors. Under the Financial Administration Act, the Board may act for the Privy Council in all matters relating to financial management including estimates, expenditures, financial commitments, establishments, revenues, accounts, terms and conditions of employment of persons in the Public Service and general administrative policy in the Public Service.

Present practice calls for departments to submit forecasts of their requirements for the next fiscal year many months in advance and in two stages. In the first stage, which starts about 15 months in advance of the beginning of the new fiscal year, the departments present forecasts of what they will require in each of the coming three years to maintain the current levels of service in each program. These are termed their "A Budgets". In the second stage, beginning about three months later, departments submit forecasts of requirements for new activities or expansion in existing activities—their "B Budgets". These proposals are reviewed by the Treasury Board in the light of expenditure guidelines approved by the Cabinet, the guidelines being expressions of the government's current priorities. The Treasury Board prepares recommendations for the budgetary and non-budgetary allocations to each program for Cabinet review. In August of the year preceding the fiscal year, departments are advised of the allocations as eventually approved by Cabinet. Departments then develop their detailed estimates of resource requirements for the new year against these approved allocations. The Estimates are submitted at the end of October. Following review by the Treasury Board and approval by Cabinet, they are tabled in Parliament in February.

Main Estimates and Supplementary Estimates are referred to Committees of the House of Commons. The timing of such referrals, the timing of committee reports and all other matters having to do with the business of supply in the House of Commons are regulated by the Standing Orders of the House (October 1969). The relevant provisions are briefly summarized here. Sect. 58 of the Standing Orders establishes three supply periods ending, respectively, not later than Dec. 10, Mar. 26 and June 30. The first Supplementary Estimates for a year are usually dealt with in the Dec. 10 period and the final Supplementary Estimates in the Mar. 26 period. In addition, interim supply (consisting of 3/12ths for all items in Estimates and extra 12ths for some items) is dealt with in the Mar. 26 period. In the June 30 period, the House is asked to provide full supply. The Standing Orders call for the referral of the new year Main Estimates to standing committees of the House by Mar. 1 of the then expiring fiscal year and reports back to the House by such committees not later than May 31 in the then current fiscal year. Supplementary Estimates are referred immediately after they are tabled, usually to the Miscellaneous Estimates Committee of the House, and dates by which reports must be made to the House are stipulated. In each supply period, a number of days are allotted to the business of supply. Opposition motions have precedence over all government supply motions on allotted days and opportunities to put forward motions of non-confidence in the government are provided. On the last allotted day in each period at 15 minutes before the ordinary time of adjournment the Speaker interrupts the proceedings then in progress and puts every question necessary to dispose of any business relating to supply. No debate takes place after the Speaker has acted in this way and the Appropriation Act or Acts then before the House have to be voted upon. These Appropriation Acts call for payments out of the Consolidated Revenue Fund of the amounts included in the Estimates, whether Main or Supplementary, and subject to the conditions stated in those Estimates.

In addition to the expenditure items included in the annual Appropriation Acts, there are a number of items, such as interest on the public debt and family allowances, which have been authorized under the provisions of other statutes. Although it is not necessary for Parliament to pass annually on these items, they are included in the Main Estimates for purposes of information. Statutory provision also exists for the expenditure of public money in emergencies where no parliamentary appropriation is available. Under the Financial Administration Act, the Governor in Council, upon the report of the President of the Treasury Board that there is no appropriation for the expenditure and upon the report of the appropriate Minister that the expenditure is urgently required, may order the issuance of a special warrant authorizing disbursement of the amount required. Such warrants may be issued only when Parliament is not in session and every warrant must be published in the *Canada Gazette* within thirty days of issue and reported to Parliament within fifteen days of assembly. The Fire Losses Replacement Account Act also provides for emergency expenditures for the urgent repair or replacement of property destroyed or damaged by fire, where there is not sufficient money available in the appropriation for the service suffering loss. Such amounts must be charged subsequently to an appropriation or included in the Estimates for the department or agency concerned.

In addition, disbursements are made for purposes not reflected in the budgetary accounts but recorded in the Government's statement of assets and liabilities, such as loans to and investments in Crown corporations, loans to international organizations and to national, provincial and municipal governments, and loans to veterans. There are also disbursements in connection with deposit and trust accounts and annuity, insurance and pension accounts which the Government holds or administers, including the old age security fund and the Canada Pension Plan fund which are operated as separate entities. These disbursements are excluded from the calculation of the annual budgetary surplus or deficit.

**The Budget.**—Some time after the Main Estimates have been introduced, the Minister of Finance presents his annual Budget Speech in the House of Commons. Budget papers, tabled for the information of Parliament at least one day prior to the presentation of the Budget, include a general review of economic conditions and a preliminary review of the Government's accounts for the fiscal year then ending. The Budget Speech itself reviews the state of the national economy and the financial operations of the Government for the previous fiscal year and gives a forecast of the probable financial requirements for the year ahead, taking into account the Main Estimates and making allowances for Supplementary Estimates and probable lapsings. At the close of his address, the Minister tables the formal resolutions for changes in the existing tax rates and customs tariff which, in accordance with parliamentary procedure, must precede the introduction of any money Bills. These resolutions give notice of the amendments which the Government intends to ask Parliament to make in the taxation statutes. However, if a change is proposed in a commodity tax, such as a sales tax or excise duty on a particular item, it is usually made effective immediately; the legislation, when passed, is made retroactive to the date of the Speech.

The Budget Speech is delivered in support of a motion that the House go into committee, the debate on which may take up six sitting days. With the passage of the motion, the way is clear for the consideration of the Budget resolutions and, when these have been approved by the Committee, a report to this effect is made to the House and the tax Bills are introduced and thereafter dealt with in the same manner as all other government financial legislation.

**Revenues and Expenditures.**—The administrative procedures whereby revenues are collected and expenditures made are, for the most part, contained in the Financial Administration Act.

With respect to revenues, the basic requirement is that all public money shall be paid into the Consolidated Revenue Fund, which is defined as the aggregate of all public money on deposit to the credit of the Receiver General. (The Minister of Supply and Services is



the Receiver General of Canada.) The Treasury Board has prescribed detailed regulations governing the receipt and deposit of such money. For the actual custody of public money, use is made of the Bank of Canada and the chartered banks. Balances are allocated to the various chartered banks on the basis of a percentage allocation established by agreement among all the banks and communicated to the Department of Finance by the Canadian Bankers' Association. The daily operating account is maintained with the Bank of Canada and the division of funds between it and the chartered banks takes into account the immediate cash requirements of the Government and consideration of monetary policy. The Minister of Finance may purchase and hold securities of, or guaranteed by, Canada and pay for them out of the Consolidated Revenue Fund or may sell such securities and pay the proceeds into the Fund. Thus, if cash balances in the Fund are in excess of requirements for the immediate future they may be invested in interest-earning assets. In addition, the Minister of Finance has established a purchase fund to assist in the orderly retirement of the public debt.

The Treasury Board exercises central control over the budgets, programs and staffs of departments and over financial and administrative matters generally. Although the most important part of this control function is exercised during the annual consideration of departmental long-range plans and the Estimates, the Board has the right to maintain continuous control over certain types of expenditure to ensure that the scale of activities and commitments for the future is held within approved policies, that departments follow uniform, efficient and economical practices, and that the Government is informed of and approves any major development of policy or significant transaction that might give rise to public or parliamentary criticism.

To ensure that the decisions of Parliament, the Government and Ministers in regard to expenditures are enforced, the Financial Administration Act provides that no payment shall be made out of the Consolidated Revenue Fund without the authority of Parliament and no charge shall be made against an appropriation except upon the requisition of the appropriate Minister or a person authorized by him in writing. These requisitions, and certificates that the work has been performed, the material supplied or the services rendered and that the price charged is reasonable or according to contract, together with such documents as may be required, are presented to the Receiver General, who makes the payment.

At the beginning of each fiscal year, or at such other times as the Treasury Board may direct, each department, unless otherwise directed by the Board, submits a division into allotments of each vote included in its Estimates. Once approved by the Board, these allotments cannot be varied or amended without the approval of the Board and expenditures charged to appropriations are limited to such allotments. To avoid over-expenditures within a fiscal year, commitments coming in course of payment within the year for which Parliament has provided or has been asked to provide appropriations are recorded and controlled by the departments concerned. (The Minister of Supply and Services may perform these services on behalf of departments.) Records are maintained of commitments made under contract that will fall due in succeeding years, since the Government must be prepared in future to ask Parliament for appropriations to cover them. Any unexpended amounts in the annual appropriations lapse at the end of the year for which they are granted, but for thirty days subsequent to Mar. 31 payments may be made and charged to the previous year's appropriations for debts payable prior to the end of that fiscal year.

Under the Financial Administration Act, every payment pursuant to an appropriation is made under the control and direction of the Receiver General by cheque or other instrument in such form and authenticated in such manner as the Treasury Board may direct. In practice, such cheques or instruments are cleared daily by the chartered banks through the Bank of Canada to the Cheque Adjustment Division of the Receiver General, and reimbursement is made by means of a cheque drawn on the Receiver General's account with the Bank of Canada.

**Public Debt.**—In addition to the collection and disbursement of public money for budgetary and non-budgetary purposes, the Government receives and disburses substantial sums in connection with its public debt operations. The Minister of Finance is authorized to borrow money by the issue and sale of securities at such rate of interest and subject to such terms and conditions as the Governor in Council may approve. Although the specific authority of Parliament is required for new borrowings, the Financial Administration Act authorizes the Governor in Council to approve the borrowing of such sums of money as are required for the redemption of maturing or called securities and, to ensure that the Consolidated Revenue Fund will be sufficient to meet lawfully authorized disbursements, he may also approve the temporary borrowing of such sums as are necessary for periods not exceeding six months. The Bank of Canada acts as the fiscal agent of the Government in the management of the public debt.

**Accounts and Financial Statements.**—Under the Financial Administration Act, and subject to regulations of the Treasury Board, the Receiver General requires accounts to be kept to show the revenues of Canada, the expenditures made under each appropriation, the other payments into and out of the Consolidated Revenue Fund, and such of the assets and direct and contingent liabilities as the Minister of Finance believes are required to give a true and fair view of the financial position of Canada. The statement of assets and liabilities is designed to disclose the amount of the net debt, which is determined by offsetting against the gross liabilities only those assets regarded currently as readily realizable or interest- or revenue-producing. Fixed capital assets, such as government buildings and public works, are charged to budgetary expenditures at the time of acquisition or construction and are shown on the statement of assets and liabilities at a nominal value of \$1.

Annually, on or before Dec. 31 or, if Parliament is not then sitting, within any of the first fifteen days next thereafter that Parliament is sitting, the *Public Accounts*, prepared by the Receiver General, is laid before the House of Commons by the Minister of Finance. The *Public Accounts* contains a survey of the financial transactions of the fiscal year ended the previous Mar. 31, statements of the revenues and expenditures for that year and of the assets and direct and contingent liabilities as at the end of that year, together with such other accounts and information as are necessary to show the financial transactions and financial position of Canada or which are required by law to be reported in the *Public Accounts*. Monthly financial statements are also published in the *Canada Gazette*.

**The Auditor General.**—The Government's accounts are subject to an independent examination by the Auditor General who is an officer of Parliament. With respect to expenditures, this examination is a post-audit for the purposes of reporting whether the accounts have been faithfully and properly kept and whether the money has been expended for the purposes for which it was appropriated by Parliament and the expenditures have been made as authorized; any audit before payment is the responsibility of the department or agency requisitioning the payment. With respect to revenues, the Auditor General is required to ascertain that all public money is fully accounted for and that the rules and procedures applied are sufficient to ensure an effective check on the assessment, collection and proper allocation of the revenue. With respect to public property, he is required to satisfy himself that essential records are maintained and that the rules and procedures applied are sufficient to safeguard and control such property. The Auditor General reports to Parliament the results of his examination, calling attention to any case which he considers should be brought to the notice of the House. He also reports to Ministers, the Treasury Board or the Government any matter which in his opinion calls for attention so that remedial action may be taken promptly.

**Public Accounts Committee.**—It is the usual practice to refer the *Public Accounts* and the *Auditor General's Report* to the Public Accounts Committee of the House of Commons, which may review them and report the findings and recommendations to the House of Commons.

THE GOVERNMENT OF CANADA

It should be noted that each chain of nodes represents a path in the network, the particular path being highlighted for each node. The use of the one-to-one and with fragments of the other type is a good way to show the great variety of sub-sequences of the original.





## Section 2.—Departments, Boards, Commissions, etc.\*

This Section indicates the functions of the various departments and the special boards and commissions conducting the work of the Government. Although it is not possible, owing to limitations of space, to include the details of each service or the divisions or sections of all departments, in general the main branches are given along with services that differ in some quality from the larger class of subjects handled. The work of many of the departments and agencies is given in detail in later Chapters of this volume; the Index will be useful in locating required information.

The Public Service is under almost continual change in response to the growth in number, variety and complexity of the services required of the Government. In 1966, a major reorganization took place, partly to achieve a functional rationalization of existing activities and partly because new activities had to be undertaken. These changes, reflected in the Government Organization Act (SC 1966, c. 25), are outlined briefly in the 1967 Year Book, pp. 83-84. With the passage of the Government Organization Act of 1969 (SC 1968-69, c. 28), additional changes were effected which are outlined in the 1970-71 Year Book, pp. 137-139.

Further major reorganization measures were introduced under the Government Organization Act of 1970 (SC 1970-71, c. 42). The Department of Fisheries and Forestry became the core of a new Department of the Environment, headed by a Minister who is responsible for Canada's renewable resources and environmental quality. To assist the Minister and, at the same time, delineate his functions, former responsibilities for water on the part of the Department of Energy, Mines and Resources and for water and air pollution monitoring and control activities on the part of the Departments of National Health and Welfare and Transport were transferred to the new Department.

The 1970 Act introduced the concept of "Ministries and Ministers of State". For the purposes of meeting the rising demands on the Government and easing Ministerial burdens, two types of Ministries of State may be established by proclamation following approval by resolution of the House of Commons of the text of the proposed Order in Council authorizing the issuance of the proclamation. One type is the Minister (for example, the Minister of Science and Technology) who is charged with a particular mission, usually of a policy nature, generally of short, or not necessarily of permanent, duration. The other is the Minister who is assigned to assist any Minister or Ministers with particularly heavy responsibilities or with a specific responsibility requiring special attention.

Ministries of State are not designed to be departments. They have no significant operational responsibilities, are relatively small in size and in most instances are of a temporary nature. Their fundamental purpose is to enable the Government to assign responsibility to a Minister for the development of policy in an area where the development of such policy is urgently required, and to equip him with suitable staff resources to discharge this responsibility.

The 1970 Act brought about other significant changes. The number of Parliamentary Secretaries formerly restricted to 16 may now equal the number of Ministers who hold offices listed in Sect. 4 of the Salaries Act. Where previously the Minister of Communications was also the Postmaster General, the Act provides that the Minister of Communications would retain the portfolio unless a Minister were appointed to the office of Postmaster General by commission.

The Act also provides for improved early retirement benefits for certain categories of persons employed in the Public Service and enables former deputy heads to elect to continue to make contributions under the Public Service Superannuation Act after they cease to be actively employed in the Public Service.

\* As at or under organization at June 30, 1971. The accompanying organization chart is brought up to the latest possible date before going to press; see lower right-hand corner.

**Department of Agriculture.**—This Department was established in 1867 (SC 1868, c. 53) and now operates under authority of RSC 1970, c. A-10. It undertakes work on all phases of agriculture. Research and experimentation are carried out by the Research Branch; the maintenance of standards and protection of products by the Production and Marketing Branch and the Health of Animals Branch; the Canada Grain Act, as it pertains to the inspection, weighing, storage and transportation of grain, is administered by the Canadian Grain Commission; and farm income security and price stability are provided under the Crop Insurance Act, the Prairie Farm Assistance Act, the Canadian Dairy Commission Act, the Agricultural Stabilization Act and the Agricultural Products Board. The Agricultural Stabilization Board, the Farm Credit Corporation, the Canadian Grain Commission, the Canadian Dairy Commission and the Canadian Livestock Feed Board report to Parliament through the Minister of Agriculture.

**Anti-dumping Tribunal.**—Under the Anti-dumping Act (RSC 1970, c. A-15, as amended by SC 1970-71, c. 3), the Anti-dumping Tribunal is declared to be a court of record and makes formal inquiry into the impact of dumping on production in Canada. Within 90 days of a preliminary determination of dumping by the Deputy Minister of National Revenue for Customs and Excise, the Tribunal must make an order or finding on the question of injury, threat of injury or material retardation to production in Canada of like goods. Decisions of the Tribunal are final and conclusive. In addition, the Tribunal shall inquire into and report to the Governor in Council on any matter or thing in relation to the importation of goods into Canada that may cause or threaten injury to the production of any goods in Canada that the Governor in Council refers to the Tribunal for inquiry and report.

The Tribunal consists of a chairman and not more than four other members. Its offices are located in Ottawa and it may conduct hearings in other centres in Canada. The Tribunal reports to Parliament through the Minister of Finance.

**Canadian Grain Commission.**—The Canada Grain Act (SC 1970-71, c. 7) came into force on Apr. 1, 1971, repealing the Canada Grain Act, 1930 (RSC 1952, c. 25) and replacing the former Board of Grain Commissioners for Canada. The new Commission reports to Parliament through the Minister of Agriculture, as did the Board, and the responsibilities are unchanged. The Commission provides general supervision over the physical handling of grain in Canada by licensing elevators and elevator operators, by inspecting, grading and weighing grain received at and shipped from terminal services, and by other services associated with regulating the grain industry. It manages and operates the six Canadian Government elevators in Western Canada.

The Commission consists of a chief commissioner and two commissioners. Its objects are, in the interests of grain producers, to establish and maintain standards of quality for Canadian grain, to ensure a dependable commodity for domestic and export markets and to regulate grain handling in Canada. It has authority to conduct investigations and hold hearings on matters coming within its purview, and to undertake, sponsor and promote research in relation to grain and grain products.

**Canadian International Development Agency.**—The operation and administration of Canada's programs of international development are the responsibility of the Canadian International Development Agency (CIDA). Originally established by Order in Council in 1960 and known until 1968 as the External Aid Office, the Agency is under the direction of a president and reports to Parliament through the Secretary of State for External Affairs.

**Canadian Penitentiary Service.**—The Penitentiary Service operates under the Penitentiary Act (RSC 1970, c. P-6) and is under the jurisdiction of the Solicitor General of Canada. It is responsible for all federal penitentiary institutions and for the care and training of persons sentenced or committed thereto. The Commissioner of Penitentiaries, under the direction of the Solicitor General, has control and management of the Service and all matters connected therewith.

**Canadian Pension Commission.**—This Commission, established in 1933 by amendments to the Pension Act (RSC 1970, c. P-7), replaced the Board of Pension Commissioners, the first organization created to deal solely with war pensions for service in Canada's Armed Forces. The Commission's main function is the administration of the Pension Act under which it adjudicates upon all claims for pensions in respect of disability or death arising out of service in Canada's Armed Forces; and Parts I to X and Part XII of the Civilian War Pensions and Allowances Act, which provide for the payment of pensions in respect of death or disability arising out of civilian service directly related to the prosecution of World War II. It also adjudicates on claims for pension under various other measures; authorizes and pays monetary grants accompanying certain gallantry awards bestowed on members of the Armed Forces; and administers various trust funds established by private individuals for the benefit of veterans and their dependants. The Commission consists of eight to twelve commissioners and up to five *ad hoc* commissioners appointed by the Governor in Council. Its chairman has the rank of a Deputy Minister and it reports to Parliament through the Minister of Veterans Affairs.

**Canadian Radio-Television Commission.**—This Commission, established under the provisions of the Broadcasting Act, 1967-68 (RSC 1970, c. B-11), is given authority to regulate and supervise all aspects of the Canadian broadcasting system. The Executive Committee, after consultation with the part-time members in attendance at a meeting of the Commission, may issue broadcasting



licences or renewal licences for such terms, not exceeding five years, and subject to such conditions related to the circumstances of the licensee as the Executive Committee deems appropriate for the implementation of the broadcasting policy enunciated in Sect. 2 of the Broadcasting Act. Under the same circumstances, the Executive Committee may, upon application by a licensee, amend any conditions of a broadcasting licence issued to him. Applications for licences to establish new broadcasting undertakings, for amendments to licences, for renewal licences, or for changes in the ownership or in the share structure of licensees are filed with the Secretary, Canadian Radio-Television Commission, Ottawa, Ont. A public hearing shall be held by the Commission in connection with the issue of a broadcasting licence, other than a licence to carry on a temporary network operation, or where the Commission or the Executive Committee has under consideration the revocation or suspension of a licence. A public hearing shall be held by the Commission, if the Executive Committee is satisfied that it would be in the public interest to hold such a hearing in connection with the amendment of a licence, the issue of a licence to carry on a temporary network operation or a complaint by a person with respect to any matter within the powers of the Commission. A public hearing shall be held by the Commission in connection with the renewal of a licence unless the Commission is satisfied that such hearing is not required.

The Commission consists of five full-time members and ten part-time members. It reports to Parliament through the Secretary of State.

**Canadian Transport Commission.**—The Canadian Transport Commission, created in 1967 by the National Transportation Act (RSC 1970, c. N-17), took over powers formerly vested in the Board of Transport Commissioners, the Air Transport Board and the Canadian Maritime Commission, giving it regulatory and judicial functions with respect to almost all aspects of railway, commercial air and merchant marine services. The Act also provides for the regulation of extra-provincial motor vehicle transport and commodity (solids) pipelines but the applicable parts of the Act were not yet in effect as at mid-1971. The Commission is divided into five Committees for the purpose of performing its regulatory duties under the Act: the Railway Transport Committee; the Air Transport Committee; the Water Transport Committee; the Motor Vehicle Transport Committee; and the Commodity Pipeline Transport Committee.

The Canadian Transport Commission is also given the responsibility for undertaking studies and research into the economic aspects of all modes of transport within, into or from Canada. It reports to Parliament through the Minister of Transport.

**Commissioner of Official Languages.**—Appointed by Parliament pursuant to the Official Languages Act (RSC 1970, c. O-2), the Commissioner holds office for a term of seven years, renewable until retirement age. He is responsible to Parliament for ensuring recognition of the equal status of French and English as Canada's official languages and for ensuring compliance with the spirit and intent of the Act in all the institutions of the Parliament and Government of Canada. To this end, the Commissioner is empowered to receive and investigate complaints from the public, and, on his own initiative, to conduct investigations into possible violations of the Act. The results of investigations must be communicated to the complainants and the institutions concerned and may, in the Commissioner's discretion, be the subject of a special report to Parliament. The Commissioner reports annually to Parliament on the conduct of his Office and may make recommendations for changes in the Act as he deems necessary or desirable.

**Department of Communications.**—The Department of Communications was established under Part II of the Government Organization Act, 1969 and operates under authority of RSC 1970, c. C-24. The duties and powers of the Minister cover all matters over which the Parliament of Canada has jurisdiction relating to telecommunications and the development and utilization generally of communication undertakings, facilities, systems and services for Canada. They include the planning and co-ordination of telecommunication services for departments and agencies of the Government of Canada, formerly under the jurisdiction of the Department of Transport, assistance to communications systems and facilities to adjust to changing domestic and international conditions, and the securing, by international regulation or otherwise, of the rights of Canada in communications matters.

The Canadian Overseas Telecommunications Corporation reports to Parliament through the Minister of Communications. Telesat Canada, a mixed-investment satellite communications corporation, also reports to Parliament on certain matters through the Minister of Communications.

**Department of Consumer and Corporate Affairs.**—Legislation to establish this Department (RSC 1970, c. C-27) received Royal Assent on Dec. 21, 1967. This statute transformed the former Department of the Registrar General of Canada into the new Department of Consumer and Corporate Affairs. The duties, powers and functions of the Minister extend to and include all matters over which the Parliament of Canada has jurisdiction, not by law assigned to any other department, branch or agency of the Government of Canada, relating to: consumer affairs; corporations and corporate securities; combines, mergers, monopolies and restraint of trade; bankruptcies and insolvencies; and patents, copyrights and trade marks.

The functions of the Department are divided into three main areas. The Bureau of Consumer Affairs co-ordinates government activities in the field of consumer affairs, the Bureau of Corporate Affairs administers the Government's corporate activities, and competition policy is regulated by the Director of Investigation and Research under the Combines Investigation Act.

In addition, as Registrar General of Canada, the Minister of Consumer and Corporate Affairs is the custodian of the Great Seal of Canada, the Privy Seal of the Governor General, the Seal of the Administrator of Canada and the Seal of the Registrar General of Canada. He is also Custodian of Enemy Property.

The Restrictive Trade Practices Commission (Combines Investigation Act) is domiciled in the Department and reports directly to the Minister.

**Department of Energy, Mines and Resources.**—The Department of Energy, Mines and Resources was created in 1966 by the Government Organization Act (RSC 1970, c. E-6). The Department, in addition to its administrative services, is organized into three groups: the Science and Technology Group includes the Geological Survey of Canada, the Mines Branch, the Surveys and Mapping Branch, the Earth Physics Branch and the Polar Continental Shelf Project, all of which are engaged in research and the provision of information in their respective fields; the Mineral Development Group includes the Mineral Resources Branch, which gathers economic data for all minerals for use of government, industry and the public and conducts administrative functions of resource management, the Explosives Division which controls, under the provisions of the Explosives Act, the production and handling of explosives, and the Quebec Regional Office; the Energy Development Group has broad responsibilities relating to the development of plans and policies for all forms of energy, the development of programs, legislation and agreements to implement those policies, the direction of studies relating to energy sources and requirements, and the co-ordination of policy advice. The Assistant Deputy Minister (Energy) serves as adviser on over-all plans and policies relating to energy sources and requirements.

Atomic Energy of Canada Limited, Eldorado Nuclear Limited, Eldorado Aviation Limited, the Atomic Energy Control Board, the National Energy Board, the International Boundary Commission and the Interprovincial Boundary Commissions report to Parliament through the Minister of Energy, Mines and Resources.

**Department of the Environment.**—This Department was established by Act of Parliament in 1971 (SC 1970-71, c. 42), its function being to improve the environment of Canada and to unite the efforts of the Federal Government and other governments and agencies related to the improvement of the threatened world environment. It is essentially a reorganization and a grouping together of many already existing agencies. The former Department of Fisheries and Forestry formed the nucleus of the new Department and complete units, branches or sectors already working on environmental problems were transferred from other departments, such as the Water Sector from Energy, Mines and Resources, the Canadian Meteorological Service from the Ministry of Transport, the Air Pollution Control and Public Health Engineering Divisions from the Department of National Health and Welfare, the Canadian Wildlife Service from the Department of Indian Affairs and Northern Development and the Canada Land Inventory from the Department of Regional Economic Expansion.

The Department is organized into two main wings, each under an Assistant Deputy Minister. The Operations Wing consists of six services: the Environment Protection Service; the Fisheries Service; the Lands, Forests and Wildlife Service; the Atmospheric Environment Service; the Water Management Service; and the Finance and Administration Service. The Policy, Planning and Research Wing advises the Minister and the Deputy Minister on Departmental policy and planning and on legal and intergovernmental affairs. A Canadian Environmental Advisory Council made up of experts from outside the Government service will be formed to advise the Minister following the review of activities that may be detrimental to the environment and the consideration of resource development projects in the context of their effect on the environment and to assist in the co-ordination of private and public groups working toward the resolution of environmental problems.

The Minister of the Environment reports to Parliament on behalf of the Fisheries Prices Support Board, the Freshwater Fish Marketing Corporation, the Canadian Saltfish Corporation and the Eastern Rockies Forest Conservation Board.

**Department of External Affairs.**—This Department was established in 1909 by "An Act to create a Department of External Affairs" (RSC 1970, c. E-20). Its main function is the protection and advancement of Canadian interests abroad. The Minister responsible for the Department is the Secretary of State for External Affairs. The senior permanent officer (Deputy Minister) of the Department, the Under-Secretary of State for External Affairs, is assisted by an Associate Under-Secretary and by five Assistant Under-Secretaries and is advised by officers in charge of Bureaus, Offices and Divisions. The Directors-General or Directors of these units are each responsible for a part of the work of the Department and are assisted by Foreign Service Officers, Administrative Services Officers and specialists in various occupational groups, as well as by an administrative staff. Officers serving abroad are formally designated as High Commissioners, Ambassadors, Ministers, Counsellors, First Secretaries, Second Secretaries, Third Secretaries and Attachés at diplomatic posts and Consuls General, Consuls and Vice-Consuls at consular posts. Canada maintains approximately 152 diplomatic, consular and other missions, 59 of which are non-resident.

The work of the Department in Ottawa is carried on by four regional, six functional and three administrative bureaus, in addition to a number of operational units performing staff or special functions. The four regional bureaus administer 11 geographical divisions, each of which is respons-



ible for a number of the countries that make up the region administered by the bureau to which it belongs: (1) the European Affairs Bureau includes three divisions—Western Europe, Eastern Europe and Northwestern Europe including Britain; (2) the Bureau of Asian and Pacific Affairs includes two divisions—East Asia, and Pacific and South Asia; (3) the Bureau of African and Middle Eastern Affairs includes three divisions—African Affairs I, African Affairs II, and Middle Eastern; and (4) the Bureau of Western Hemisphere Affairs includes three divisions—Caribbean (Commonwealth), Latin American, and United States. The six functional bureaus include 13 divisions: (1) the Bureau of Economic and Scientific Affairs includes four divisions—Aid and Development, Commercial Policy, Scientific Relations, and Environmental Problems, Transportation, Communications and Energy; (2) the Bureau of Legal and Consular Affairs includes three divisions—Consular, Legal Advisory, and Legal Operations; (3) the Bureau of Defence and Arms Control includes two divisions—Arms Control, Disarmament and Peace-keeping, and Defence Relations; (4) the Bureau of Public Affairs has four divisions—Academic Relations Service, Cultural Affairs, Historical, and Information; (5) the Bureau of Coordination includes three divisions—Commonwealth Institutions, Federal-Provincial Coordination, and Francophone Institutions; and (6) the Bureau of United Nations Affairs includes two divisions—United Nations Economic and Social Affairs, and United Nations Political and Institutional Affairs. The three administrative bureaus are responsible respectively for Personnel, Finance and Administration, and Communications and Information Systems. In addition, there is an Inspection Service, a Policy Analysis Group, an Operations Centre, a Central Staff and an Interdepartmental Committee on External Relations.

The International Joint Commission reports to the Secretary of State for External Affairs of Canada as well as to the Secretary of State of the United States. The Secretary of State for External Affairs reports to Parliament for the Canadian International Development Agency.

**Department of Finance.**—This Department was created by Act of Parliament in 1869 and now operates under the Financial Administration Act (RSC 1970, c. F-10). The Department is responsible for the financial administration of Canada including the raising of money required for the various government activities by way of taxation or borrowing. The work of the Department is organized into the following Divisions: Personal, Estate and Commodity Tax, Corporations and Business Incomes, Economic Development, Federal-Provincial Relations, Fiscal Policy, Pensions and Social Insurance, Resource Programmes, Municipal Grants, Economic Analysis, Government Finance, Capital Markets, International Finance, Tariffs, International Economic Relations, and International Programmes. The Inspector General of Banks is a branch of the Department. The Tariff Board, the Bank of Canada and its subsidiary, the Industrial Development Bank, the Anti-dumping Tribunal, the Canada Deposit Insurance Corporation, and the Department of Insurance report to Parliament through the Minister of Finance who is also the spokesman in the Cabinet and the House of Commons for the Auditor General of Canada.

**Historic Sites and Monuments Board.**—This Board was established in 1919 and now operates under authority of RSC 1970, c. H-6. It is an appointed body of 12 provincial and two federal officials which advises the Minister of Indian Affairs and Northern Development on matters of national historic importance with particular reference to commemoration or preservation.

**Department of Indian Affairs and Northern Development.**—The Department of Indian Affairs and Northern Development was established in June 1966, superseding the Department of Northern Affairs and National Resources; it now operates under authority of RSC 1970, c. I-7. In 1968, the Department was reorganized, creating, in addition to departmental support services and a Technical Services Branch, three distinct program areas: (1) the Indian and Eskimo Affairs Program includes education, Indian trust administration and an Indian-Eskimo Bureau which provides a focal point for the federal administration for Indian and Eskimo affairs; (2) the Northern Development Program covers major resource development in the Canadian North, industrial development for Indians and Eskimos, land management of Indian reserves, wetland acquisition, management of territorial resources along with economic research and advice; (3) the Conservation Program, including National Parks and Historic Sites and Parks. As a result of the proposed Indian Policy, a group called the Indian Consultation and Negotiation Group has been created to carry out negotiations and consultations with Indian organizations and bands and with provincial governments on the policy proposals.

The Commissioner of the Northwest Territories and the Commissioner of Yukon Territory report to Parliament through the Minister of Indian Affairs and Northern Development. The Minister is also responsible to Parliament for the Northern Canada Power Commission, the National Battlefields Commission and the Historic Sites and Monuments Board of Canada. The Northern Scientific Adviser's Office acts in an advisory capacity to the Minister.

**Department of Industry, Trade and Commerce.**—In 1969, the Departments of Industry and of Trade and Commerce were merged to form the Department of Industry, Trade and Commerce, which operates under authority of RSC 1970, c. I-11. Its functions are to: (1) promote the establishment, growth and efficiency of manufacturing, processing and tourist industries in Canada, contribute to the sound development and productivity of Canadian industry generally and foster the expansion of Canadian trade; (2) develop and carry out such programs and projects as may be appropriate to (a) assist manufacturing and processing industries to adapt to changes in technology and to changing conditions in domestic and export markets, (b) assist manufacturing and processing



industries to develop their unrealized potential, to rationalize and re-structure their productive facilities and corporate organizations and to cope with exceptional problems of adjustment, and (c) promote and assist product and process development and increased productivity, the greater use of research, the application of advanced technology and modern management techniques, the modernization of equipment, the utilization of improved industrial design and the development and application of sound industrial standards in Canada and in world trade; (3) improve the access of Canadian produce, products and services into external markets through trade negotiations and the promotion of trade relations with other countries and contribute to the improvement of world trading conditions; (4) promote the optimum development of Canadian export sales of all produce, products and services; (5) provide support services for industrial and trade development, including information, import analysis and traffic service; (6) analyse the implications for Canadian industry, trade and commerce and for tourism of government policies related thereto in order to contribute to the formulation and review of those policies; (7) compile and keep up-to-date detailed information in respect of manufacturing and processing industries in Canada and of trends and developments in Canada and abroad relating to Canadian industrial development and trade; and (8) promote the optimum development of income from tourism and compile and keep up-to-date detailed information in respect of the tourist industry and of trends and developments in Canada and abroad relating to tourism.

The Department is organized into five major functional groups: Trade and Industrial Policy, Office of Economics, Industry and Trade Development, Office of Tourism, and Administration. The Trade and Industrial Development component comprises the Offices of General Relations, Area Relations, Industrial Policy Adviser and Special Import Policy. The Office of Economics is made up of the following Branches: General Analysis, Investment Analysis, Market Analysis, and Productivity. The Industry and Trade Development segment contains an Operations group composed of a Programs Office and nine industry sector Branches (Aerospace, Marine and Rail; Agriculture, Fisheries and Food Products; Apparel and Textiles; Chemicals; Electrical and Electronics; Machinery; Materials; Mechanical Transport and Wood Products); an External Services group consisting of a Programs Office, the International Defence Programs Branch and the Trade Commissioner Service (which operates 78 trade offices in 55 countries), an Office of Promotional Services that directs the Fairs and Missions Branch, the Publicity Branch and the Industry, Trade and Traffic Services Branch (which operates eight Regional Offices in Canada and a World Exhibitions Liaison Office), Offices of Science and Technology and of Design, and a Grains Program Office. The Office of Tourism includes the Canadian Government Travel Bureau and the Travel Industry Branch.

The Minister also reports to Parliament on behalf of Statistics Canada and the Export Development Corporation. Boards and other organizations reporting to the Minister are the Adjustment Assistance Board, the General Adjustment Assistance Board, the Machinery and Equipment Advisory Board, the Pharmaceutical Industry Development Advisory Committee, the National Design Council, the Standards Council of Canada and the Textile and Clothing Board.

**Information Canada.**—This organization, established Apr. 1, 1970, was created to advise federal departments on their information programs, to co-ordinate information programs involving more than one department, and to produce information on the Federal Government and on Canada in general. Such information will be disseminated by conventional means and also through Regional Enquiry Centres to be set up across the country. Equally important is its responsibility to provide Parliament and Federal Government agencies with information on the attitudes and opinions of the Canadian people, as expressed individually, through the media or through attitudinal surveys.

On the date of its establishment, Information Canada assumed responsibility for the publishing functions of the Queen's Printer and for the Canadian Government Exhibition Commission (now Information Canada—Expositions Division); it also assumed responsibility for the Still Photo Library of the National Film Board. Information Canada reports to Parliament through the Minister of State responsible for Information Canada.

**Department of Insurance.**—The Minister of Finance is responsible for the Department of Insurance which originated in 1875 as a branch of the Department of Finance but was constituted a separate Department in 1910. It is authorized and governed by the Department of Insurance Act (RSC 1970, c. I-17). Under the Superintendent of Insurance, who is the Deputy Head, the Department administers the statutes of Canada applicable to: insurance, trust, loan and investment companies incorporated pursuant to an Act of the Parliament of Canada; provincially incorporated insurance companies registered with the Department; British and foreign insurance companies operating in Canada; small loans companies and money-lenders; co-operative credit societies registered under the Co-operative Credit Associations Act; pension plans organized and administered for the benefit of persons employed in connection with certain federal works, undertakings and businesses; and life insurance issued to certain members of the Public Service prior to May 1954.

Under the relevant provincial statutes, the Department examines trust companies incorporated in the Provinces of Manitoba and New Brunswick and loan and trust companies incorporated in the Province of Nova Scotia. It reports to Parliament through the Minister of Finance.

**International Joint Commission.**—This Commission was established under a Britain-United States treaty signed Jan. 11, 1909 and ratified by Canada in 1911. The Commission, composed of six members (three appointed by the President of the United States and three by the Government

of Canada), is governed by five specific Articles of the Boundary Waters Treaty of 1909. The Commission's approval is required for any use, obstruction or diversion of boundary waters affecting the natural level or flow of boundary waters in the other country; and for any works in waters flowing from boundary waters or below the boundary in rivers flowing across the boundary which raise the natural level of waters on the other side of the boundary.

Problems arising along the common frontier are also referred to the Commission by either country for examination and report, such report to contain appropriate conclusions and recommendations. In addition, questions or matters of difference between the two countries may be referred to the Commission for decision, provided both countries consent.

The Commission reports to the Secretary of State for External Affairs of Canada and to the Secretary of State of the United States.

**Department of Justice.**—This Department, established by SC 1868, c. 39, now operates under authority of the Department of Justice Act (RSC 1970, c. J-2). The Minister of Justice is the official legal adviser of the Governor General and the legal member of the Queen's Privy Council for Canada. It is his duty to see that the administration of public affairs is in accordance with law, to superintend all matters connected with the administration of justice in Canada that are not within the jurisdiction of the provincial governments, to advise upon the legislation and proceedings of the provincial legislatures, and generally to advise the Crown upon all matters of law referred to him by the Crown. The Minister of Justice is, ex officio, Her Majesty's Attorney General of Canada. In this capacity it is his duty to advise the heads of the departments of the Government of Canada upon all matters of law connected with such departments, to settle and approve all instruments issued under the Great Seal of Canada, and to regulate and conduct all litigation for or against the Crown in the right of Canada.

The Minister of Justice reports to Parliament for the Tax Review Board.

**Department of Labour.**—The Department of Labour was established in 1900 by Act of Parliament (SC 1900, c. 24) and now operates under authority of the Department of Labour Act (RSC 1970, c. L-2). The Department administers, under the Minister of Labour, legislation dealing with: industrial relations, investigation of disputes, etc.; fair employment practices; the regulation of fair wages and hours of labour; female employee equal pay; government employee compensation; merchant seamen compensation; safety in employment; and hours of work, minimum wages, annual vacations and holidays with pay. It promotes joint consultation with industry through labour-management committees and operates a Women's Bureau. The Department publishes the *Labour Gazette* and other publications, as well as general information on labour-management, employment, manpower and related subjects.

The Merchant Seamen Compensation Board reports to the Minister of Labour. The Department is the official liaison agency between the Canadian Government and the International Labour Organization. The Unemployment Insurance Commission and the Canada Labour Relations Board report to Parliament through the Minister of Labour. The Canada Labour Relations Board administers certain provisions of the Industrial Relations and Disputes Investigation Act.

**Library of Parliament.**—The Library of Parliament as such was established in 1871 although it existed earlier. It currently functions under RSC 1970, c. L-7. The Library of Parliament keeps all books, maps and other articles that are in the joint possession of the Senate and the House of Commons. The Parliamentary Librarian is also responsible for the Parliamentary Reading Room. Persons entitled to borrow books from the Library of Parliament are the Governor General, Members of the Privy Council, Members of the Senate and the House of Commons, Officers of the two Houses, Justices of the Supreme Court of Canada and the Federal Court of Canada, and members of the Press Gallery. In addition, books are lent to other libraries and government agencies and reference service is given to scholars. A special research branch serves Parliamentarians only. The Parliamentary Librarian has the rank of a Deputy Head of a department and is responsible for the control and management of the Library under the Speaker of the Senate and the Speaker of the House of Commons assisted by a Joint Committee appointed by the two Houses.

**Department of Manpower and Immigration.**—This Department was constituted in January 1966 and now operates under authority of RSC 1970, c. M-1. It is composed of two operational divisions and four support services.

The Canada Manpower Division is responsible for the counselling and placement of workers, the recruitment of workers to meet industry's requirements, manpower training and mobility, community adjustment of migrants and immigrants, rehabilitation of vocationally handicapped workers, and manpower adjustment and employer consultation services. The Canada Immigration Division administers the Immigration Act and Regulations and is responsible for the selection, examination and movement of immigrants to Canada, and for the exclusion or deportation of undesirables.

The Program Development Service provides research and develops and evaluates programs for the two main operating divisions. Other support services are Financial and Management, Personnel, and Information.

The Department maintains 390 Canada Manpower Centres and 94 Canada Immigration Centres in Canada, as well as regional offices located in Halifax, Montreal, Toronto, Winnipeg and Vancouver. It also maintains 48 Canadian immigration offices abroad.



**Department of National Defence.**—The Department of National Defence and the Canadian Forces operate under the National Defence Act (RSC 1970, c. N-4). The control and management of all matters relating to national defence, the Canadian Armed Forces and the Defence Research Board are the responsibility of the Minister of National Defence; the duties and functions relating to civil emergency operations in peace and war are also assigned to the Department, with the Canadian Forces undertaking the role.

The Canadian Forces Reorganization Act, 1968 "unified" the Royal Canadian Navy, the Canadian Army and the Royal Canadian Air Force into a single service called the Canadian Armed Forces. The civilian administration of the Department is organized under the Deputy Minister, who maintains control over the financial aspects of operational policy, logistics, and personnel and administration. The Defence Research Board, created in 1947, conducts research relating to the defence of Canada and also undertakes the development of or improvements in materiel.

A Defence Council, consisting of the Minister of National Defence as Chairman, the Deputy Minister of National Defence, the Chief of Defence Staff, the Chairman of the Defence Research Board and the Vice Chief of Defence Staff, meets at regular intervals to consider and advise on major policy matters.

The Crown corporation, Defence Construction (1951) Limited, reports to Parliament through the Minister of National Defence. The Emergency Measures Organization (EMO) reports to the Minister of National Defence through the Deputy Minister.

**National Energy Board.**—This Board was established under the National Energy Board Act, 1959 (RSC 1970, c. N-6) for the purpose of assuring the best use of energy resources in Canada. The Board, composed of seven members, is responsible for the regulation of the construction and operation of the oil and gas pipelines that are under the jurisdiction of the Parliament of Canada, the tolls charged for transmission by oil and gas pipelines, the export and import of gas and the import of motor gasoline and motor gasoline-blending components, the export of electric power, and the construction of the lines over which power is exported or imported. The Board is also required to study and keep under review all matters relating to energy under the jurisdiction of the Parliament of Canada and to recommend such measures as it considers necessary and advisable on the subject. The Board reports to Parliament through the Minister of Energy, Mines and Resources.

**National Film Board.**—The National Film Board, established in 1939, operates under the National Film Act (RSC 1970, c. N-7) which provides for a Board of Governors of nine members—a Government Film Commissioner, appointed by the Governor in Council, who is chairman of the Board, three members from the Public Service of Canada and five members from outside the Public Service. The Board reports to Parliament through the Secretary of State. The Board is responsible for advising the Governor in Council on film activities and is authorized to produce and distribute films in the national interest and, in particular, films "designed to interpret Canada to Canadians and to other nations". The Board is responsible for the production and processing of films for government departments. Its head office is located in Ottawa and its operations are carried out in Montreal.

**Department of National Health and Welfare.**—This Department was established in October 1944 under authority of the Department of National Health and Welfare Act (RSC 1970, c. N-9). The original Department of Health formed in 1919 later became part of the Department of Pensions and National Health, which was replaced in 1944 by the Department of National Health and Welfare and the Department of Veterans Affairs.

The Department, headed by the Minister of National Health and Welfare, is composed of: the Research and Statistics Directorate; the Administration Branch; and seven other Branches—Health Services, Health Insurance and Resources, Medical Services, Food and Drug, Income Security, Welfare Assistance and Services and Special Programmes. The health Branches come under the Deputy Minister of National Health and the welfare Branches under the Deputy Minister of National Welfare. They also carry responsibility in keeping with Canada's role in the fields of international health and international welfare, respectively.

The Department has charge of matters relating to the promotion and preservation of the health, social security and social welfare of the people of Canada over which the Parliament of Canada has jurisdiction. Its functions include investigation and research into public health and welfare; inspection and medical care of immigrants and seamen and medical services for and in conjunction with the Canadian Coast Guard Service; supervision of health facilities on all forms of transportation; enforcement of regulations of the International Joint Commission relating to health; promotion and conservation of the health of Federal Government employees; collection, publication and distribution of information relating to health, sanitation and social and industrial conditions affecting the health of Canadians; and co-operation with provincial authorities with a view to the co-ordination of efforts directed toward the preservation and improvement of public health and toward the provision of social security and welfare for the people of Canada.

Departmental programs on health include: the Hospital Insurance and Diagnostic Services Program, under which contributions are made in respect of programs administered by the provinces providing hospital insurance and laboratory and other services in aid of diagnosis; the Medical Care Insurance Program, under which contributions are made toward the cost of insured medical care services incurred by the provinces pursuant to provincial medical care plans; the Health Re-



sources Fund Program, assisting the provinces in the acquisition, construction, and renovation of health training facilities and research institutions; the Food and Drug Program, for the protection of the Canadian consumer from health hazards and fraud in the manufacture, importation, advertising, and sale of food, drugs, cosmetics, medical devices, and hazardous products; the Narcotic Drug Control Program; the National Health Grant Program, providing for grants to the provinces for the development and extension of health services; federal emergency health services; assistance and consultation services to the provinces, upon request, respecting blindness control, child and maternal health, environmental health, mental health, dental health, nursing, medical rehabilitation, bacteriology, virology, parasitology and clinical chemistry, zoonoses, nutrition, and health facilities design; an environmental health program, concerned with the provision of advice, the development of standards, and the design and conduct of studies and research directed to the assessment of the health significance and control of such environmental health hazards as air and water pollution, noise, industrial hazards, and exposure to harmful radiations; a drug adverse reaction reporting program, and a central clearing house for the Canadian Poison Control Centres; health, medical and hospital services to the Indians and Eskimos across Canada and to other elements of the population in the Yukon and Northwest Territories; government employee health services; and leprosy control.

Departmental operating programs on *welfare* include: the Canada Pension Plan, a contributory insurance program providing a retirement pension at age 65, survivors' benefits for widows, disabled widowers, orphans, and a lump-sum death benefit; the old age security program, a monthly pension payable without a means test to all persons aged 65 and over who meet the residence requirements; a guaranteed income supplement to old age security pensioners who have little or no income other than the pension; programs of family allowances, providing a monthly payment to the mother on behalf of children under 16 years of age; a program of youth allowances, providing a monthly payment on behalf of children aged 16 and 17 who are attending school full time or unable to attend because of mental or physical disability; the Canada Assistance Plan, a measure to complement other income security measures, administered by the provinces which are reimbursed by the Department for 50 p.c. of the cost; emergency welfare; a fitness and amateur sport program; and a system of welfare grants for professional training and research.

The National Council of Welfare, reconstituted in 1969 as a citizens advisory council, reports directly to the Minister who also reports to Parliament for the Medical Research Council.

**National Library.**—The National Library came formally into existence on Jan. 1, 1953, with the proclamation of the National Library Act (RSC 1970, c. N-11). It publishes *Canadiana*, a monthly catalogue of new publications relating to Canada, with an annual cumulation. The Library also publishes other bibliographies. Its Reference Division maintains the *National Union Catalogue* which embodies the author catalogues of the major libraries in the ten provinces and is thus a key to the book collections of the whole country. The Library's own bookstock totals more than 400,000 volumes. The National Librarian reports to Parliament through the Secretary of State.

**National Parole Board.**—The establishment of the National Parole Board, which was formed in January 1959, is authorized by the Parole Act (RSC 1970, c. P-2) by which it is given absolute jurisdiction over all matters of parole, except that in respect of commuted death sentences it may only recommend rather than approve parole. It is composed of a chairman and eight members appointed by Order in Council for a ten-year period. The Board reports to Parliament through the Solicitor General of Canada.

**Department of National Revenue.**—From Confederation until May 1918, customs and inland revenue Acts were administered by separate departments; after that date they were amalgamated under one Minister as the Department of Customs and Inland Revenue. In 1921 the name was changed to the Department of Customs and Excise. In April 1924 collection of income taxes was placed under the Minister of Customs and Excise and, under the Department of National Revenue Act, 1927, the Department became known as the Department of National Revenue.

The Customs and Excise Division of the Department is responsible for the assessment and collection of customs and excise duties as well as of sales and excise taxes. The Taxation Division is responsible for the assessment and collection of income taxes, gift tax, old age security tax, Part I of the Canada Pension Plan, and estate taxes for Canada and all provinces, with certain exceptions, through its 28 district taxation offices and its Taxation Data Centre; on Jan. 1, 1972, the Division assumes responsibility for collecting premiums under the revised Unemployment Insurance Act.

**Office of the Auditor General.**—This Office originated in 1878 and currently functions under the Financial Administration Act (RSC 1970, c. F-10). The Auditor General is responsible for examining accounts relating to the Consolidated Revenue Fund and to public property, and for reporting annually to the House of Commons the results of his examinations. He also audits the accounts of various Crown corporations and other instrumentalities. The Minister of Finance acts as spokesman in Parliament for the Auditor General.

**Office of the Chief Electoral Officer.**—This Office was established in 1920 under the provisions of the Dominion Elections Act, now the Canada Elections Act (SC 1969-70, c. 49), and is responsible for the conduct of all federal elections as well as the elections of members of the Northwest Ter-

ritories Council and of the Yukon Territory Council. In addition, it conducts any vote taken under the Canada Temperance Act. The Chief Electoral Officer is responsible directly to Parliament, the President of the Privy Council acting as spokesman for him in the Cabinet and the House of Commons.

**Office of the Representation Commissioner.**—The Office was established in 1963 under the provisions of the Representation Commissioner Act (RSC 1970, c. R-6). After each decennial census, the Representation Commissioner is responsible for preparing maps showing the distribution of population in each province and setting out alternative proposals respecting the boundaries of electoral districts in each province. These maps are supplied to the 10 electoral boundaries commissions (one for each province) established under the provisions of the Electoral Boundaries Readjustment Act (RSC 1970, c. E-2). The Representation Commissioner is a member of each of the 10 commissions. The Secretary of State acts as spokesman for the Office in the Cabinet and the House of Commons.

**Post Office Department.**—Administration and operation of the Canada Post Office, by virtue of the Post Office Act (RSC 1970, c. P-14) and under the Postmaster General, includes all phases of postal activity, personnel, mail handling, transportation of mails by land, water, rail and air and the direction and control of financial services including the operation of the money order service.

The Department's headquarters is located in Ottawa, with regional headquarters in Halifax, Montreal, Toronto and Vancouver. District offices are located in St. John's, Halifax, Moncton, Quebec City, Montreal, Ottawa, North Bay, Toronto, London, Winnipeg, Saskatoon, Edmonton and Vancouver.

**Privy Council Office.**—For administrative purposes, the Privy Council Office is regarded as a Department of Government under the Prime Minister. The Clerk of the Privy Council, under whose direction its functions are carried out, is considered as a Deputy Head and takes precedence among the chief officers of the Public Service. The authority of the Privy Council Office is to be found in Sects. 11 and 130 of the British North America Act, 1867, which constituted a Council to aid and advise in the Government of Canada to be styled the Queen's Privy Council for Canada. In 1940, upon the wartime development of Cabinet committees and the consequent need for orderly secretarial procedures such as agenda, explanatory memoranda and minutes, the Principal Secretary in the Prime Minister's Office was designated Clerk of the Privy Council and Secretary to the Cabinet. Since 1946, the Privy Council Office has been further reorganized, developed and enlarged and certain administrative functions of the Privy Council Office and the Prime Minister's Office have been closely integrated in the interests of efficiency and economy.

The organization of the Privy Council Office at present consists primarily of the Cabinet Secretariat with the following divisions reporting to the Clerk of the Privy Council and Secretary to the Cabinet: Deputy Secretary to the Cabinet (Operations); Deputy Secretary to the Cabinet (Plans); and Deputy Secretary to the Cabinet (Federal-Provincial Relations). Within the Privy Council Office, submissions to the Governor in Council are received, draft orders and regulations prepared, approved Orders are circulated and, in addition, the duties of editing, registering and publishing the federal statutory regulations in Part II of the *Canada Gazette* are carried out. The various secretaries deal with secretarial work for the Cabinet and for Cabinet Committees and interdepartmental committees. This involves the preparation and circulation of agenda and necessary documents to Ministers and recording and circulating decisions; liaison with departments and agencies of the government; and the preparation of material for the Prime Minister.

The Office of the Prime Minister is organized as a Secretariat associated with the Privy Council Office and includes members of the Prime Minister's personal staff responsible for general secretarial duties, the drafting of letters, the arrangement of appointments to interview the Prime Minister or for his public appearances or for the release of his statements on matters of public interest, and for assisting the Prime Minister in his parliamentary duties.

**Public Archives.**—The Public Archives was founded in 1872 and is administered under the Public Archives Act (RSC 1970, c. P-27) by the Dominion Archivist who has the rank of a Deputy Minister and reports to Parliament through the Secretary of State. Its purpose is to assemble and make available to the public a comprehensive collection of source material relating to the history of Canada. It also has broad responsibilities in regard to the promotion of efficiency and economy in the management of the Federal Government records. The Historical Branch, located in the National Library and Archives Building, is a centre for research on the development of Canada. In addition to the selected records of the Federal Government, it possesses an extensive collection of private papers of individuals and societies, a map collection which is the most important of its kind in the country, and an extensive collection of paintings, drawings, prints, photographs, sound recordings and films relating to Canada. A specialized library is also at the disposal of searchers. The Records Management Branch operates a large Records Centre in Ottawa and regional centres in Toronto and Montreal where non-current departmental records are centralized, stored and serviced. It assists departments in their records management program. The Administrative Technical Services Branch operates the Central Microfilm Unit for the several departments of government.

Under the terms of the Laurier House Act (RSC 1952, c. 163), the Public Archives is responsible for the administration of Laurier House as a museum.

**Public Service Commission.**—Arrangements were made for civil service appointments under the first Civil Service Act of 1868 but the first Civil Service Commission was created only in 1908. This established the beginnings of the merit system which is today the cornerstone of personnel administration in the Public Service. The Act of 1918 gave the Commission authority to control recruitment, selection, appointment, classification and organization and to recommend rates of pay. The next Civil Service Act, passed in 1961, strengthened the principles of the merit system, clarified the Commission's role in other areas of personnel administration, and gave the staff associations the right to be consulted on matters about remuneration and conditions of employment.

The Public Service Employment Act (RSC 1970, c. P-32) which came into force on Mar. 13, 1967, redefined the Commission's role as the central staffing agency and extended its authority to the Public Service, covering certain groups of employees exempt from the previous Acts. The Public Service is specified in Schedule A of the Public Service Staff Relations Act. It does not include Crown corporations, such as the Canadian Broadcasting Corporation, the Central Mortgage and Housing Corporation, the Canadian National Railways and Air Canada. The new Act also reaffirms the merit principle, at the same time permitting delegation of the Commission's authority, although not its responsibility to Parliament. Under the Act, the Commission is relieved of responsibility for recommending rates of pay and conditions of service to the Government, for classification, and for consultation with staff associations on matters that are now the subject of collective bargaining.

The Public Service Commission reports to Parliament through the Secretary of State.

**Department of Public Works.**—The Department was constituted in 1867 and operates under the legislative authority of the Public Works Act (RSC 1970, c. P-38). It is responsible for the management and direction of the public works of Canada and, except as specifically provided in other Acts, attends to the construction and maintenance of public buildings, wharves, piers, roads and bridges and the undertaking of dredging and protection work. Federal Government interest in the Trans-Canada Highway and the Northwest Highway System is also handled by the Department. The Department has six Regional Offices—one each at Halifax, Montreal, Ottawa, Toronto, Edmonton and Vancouver—and District Offices at other key points across the country are also maintained. Departmental organization includes a Design and Construction Branch, and Directorates of Customer and Public Relations, Program Planning and Coordination, Property Services and Building Administration, together with a Planning and Systems Branch, Financial Adviser, Personnel Adviser, Departmental (Executive) Secretary, Directorate of Program Management Evaluation and the Dominion Fire Commissioner.

**Department of Regional Economic Expansion.**—This Department was established in 1969 (RSC 1970, c. R-4). Its function is to ensure that economic growth is dispersed widely enough across Canada to bring employment and earning opportunities in the slow-growth regions as close as possible to those in the other parts of the country, without interfering with a high over-all rate of national growth. The legislation authorizes the Department, in co-operation with provincial governments and other federal agencies, to prepare development plans and programs designed to meet the special needs of particular areas.

The Department has five major divisions, each under the control of an Assistant Deputy Minister: Planning, Incentives, and the Eastern, Central and Western Regions. A major program provides development incentives to industry, in the form of cash grants, to encourage new productive employment in Designated Regions where such employment has been scarce. In 22 Special Areas, the Department is taking special action to encourage economic development and social adjustment. The Department is also responsible for programs under the Agricultural and Rural Development Act (ARDA); the Fund for Rural Economic Development (FRED); and the Prairie Farm Rehabilitation Act (PFRA)—which is concerned with land use adjustment, water development projects, and the establishment of tree shelterbelts. An Atlantic Development Council advises the Minister on programs and policies for fostering economic development and social adjustment in the Atlantic region.

The Minister of Regional Economic Expansion reports to Parliament for the Cape Breton Development Corporation.

**Royal Canadian Mounted Police.**—The Royal Canadian Mounted Police, a civil force maintained by the Federal Government, was organized in 1873 as the North-West Mounted Police. It now operates under the Royal Canadian Mounted Police Act (RSC 1970, c. R-9) and is responsible for enforcing federal laws throughout Canada. By agreement with the governments of eight provinces (all provinces except Ontario and Quebec) it is also responsible for enforcing provincial laws within those provinces and for policing many district municipalities, cities and towns. A Commissioner, appointed by the Governor in Council, has the control and management of the Force and of all matters connected therewith; he functions under the direction of the Solicitor General of Canada.

**Department of the Secretary of State.**—The duties, powers and functions of the Secretary of State of Canada extend to and include all matters over which the Parliament of Canada has jurisdiction, not by law assigned to any other department, branch or agency of the Government of Canada, relating to: citizenship; elections; State ceremonial, the conduct of State correspondence



and the custody of State records and documents; the encouragement of the literary, visual and performing arts, learning and cultural activities; and libraries, archives, historical resources, museums, galleries, theatres, films and broadcasting.

The responsibilities of the Department of the Secretary of State include those pertaining to the administration of the following branches: Citizenship; Citizenship Registration; Education Support; Bilingualism Development Programmes; Arts and Cultural Support; Ceremonies and Special Events; and Translation Bureau. The Citizenship and Citizenship Registration Branches report to the Minister without Portfolio responsible for citizenship.

The Secretary of State reports to Parliament for the Canadian Film Development Corporation, the National Arts Centre Corporation, the National Film Board, the National Library, the Public Archives, the National Museums of Canada, the Canada Council, the Canadian Broadcasting Corporation, the Canadian Radio-Television Commission, the Company of Young Canadians and the Public Service Commission.

**Department of the Solicitor General.**—Before 1936, the Office of the Solicitor General was either a Cabinet post or a Ministerial post outside the Cabinet. From 1936 to 1945 the position did not exist, the duties of the Office being wholly absorbed by the Attorney General of Canada. The Solicitor General Act, 1945 re-established the Solicitor General as a Cabinet officer and provided that "the Solicitor General shall assist the Minister of Justice in the Counsel work of the Department of Justice, and shall be charged with such other duties as are at any time assigned to him by the Governor-in-Council". This legislation was repealed in 1966 when a new Department of the Solicitor General was created and the Solicitor General of Canada was assigned responsibility for the Royal Canadian Mounted Police and the Canadian Penitentiary Service (RSC 1970, c. 8-12). The Solicitor General also reports to Parliament for the National Parole Board, which is an independent agency. With this new legislation, the Solicitor General of Canada becomes the Cabinet Minister with primary responsibility in the fields of correction and law enforcement.

**Standards Council of Canada.**—This Council was established by Act of Parliament (SC 1969-70, c. 73), which received Royal Assent on Oct. 7, 1970. Its objects are to foster and promote voluntary standardization in fields relating to the construction, manufacture, production, quality, performance and safety of buildings, structures, manufactured articles and products and other goods, including components thereof, not expressly provided for by law, as a means of advancing the national economy, benefiting the health, safety and welfare of the public, assisting and protecting consumers, facilitating domestic and international trade and furthering international co-operation in the field of standards. Its function also includes the encouragement of preparations for change to the metric system.

The Council consists of not more than 57 members, of whom six are federal representatives, 10 are provincial representatives and 41 are representatives of national organizations. Membership is broadly representative of all levels of government, primary and secondary industries, distributive and service industries, trade associations, labour unions, provincial associations, consumer associations and the academic community.

The Council reports to Parliament through the Minister of Industry, Trade and Commerce.

**Statistics Canada.**—Statistics Canada became the new name for the Dominion Bureau of Statistics with the proclamation of a new Statistics Act (SC 1971, c. 15) on May 1, 1971. The bureau was initially set up by statute in 1918 as a central statistical agency for Canada (SC 1918, c. 43). In 1948 this statute, which had been consolidated as the Statistics Act (RSC 1927, c. 190), was repealed and replaced by the Statistics Act (RSC 1952, c. 257) which was amended by SC 1952-53, c. 18, assented to Mar. 31, 1953. The 1971 Act replaces that statute.

The functions of Statistics Canada are to compile, analyse and publish statistical information relative to the commercial, industrial, financial, social and general condition of the people and to conduct regularly a census of population and agriculture of Canada as required under the Act.

Statistics Canada is a major publication agency of the Federal Government; its reports cover all aspects of the national economy and social conditions of the country. The administrative head of the bureau is the Chief Statistician of Canada who has the rank of a Deputy Head of a department and reports to Parliament through the Minister of Industry, Trade and Commerce.

**Department of Supply and Services.**—The Department of Supply and Services was established on Apr. 1, 1969 (RSC 1970, c. 8-18) incorporating certain services previously provided by other departments as recommended by the Royal Commission on Government Organization which stressed the need for the Federal Government to foster efficiency and effect economies wherever possible. The Minister of Supply and Services is also the Receiver General for Canada and exercises all the duties, powers and functions assigned to the Receiver General by law.

The Department is organized into two major administrations, each headed by a Deputy Minister directly responsible to the Minister. The Supply Administration administers the Supply Programme, the objective of which is to acquire and provide, at minimum cost, goods and services required by Federal Government departments and agencies. It also functions to maintain Federal Government equipment and provides printing facilities. Besides the 13 Field Supply Offices, the Supply Administration has one office each in London, England, and Koblenz, Germany. Some of

these Field Supply Offices perform purchasing, equipment maintenance and asset management functions; others are purchasing and maintenance centres or purchasing supply centres. As of Apr. 1, 1971, the Supply Administration was reorganized into the Commercial Supply Service, the Engineering Procurement Service and the Planning Service.

The Services Administration, acting for the Receiver General, provides payment or cheque-issuing services on behalf of all federal departments, maintains the fiscal accounts of Canada and prepares the public accounts. It offers departments and agencies a broad range of management and advisory services in management consulting, auditing and computer services fields. It also provides for all departments administrative services in connection with pay, pensions and other employee benefit plans, together with financial management reports and statistical information related to its cheque-issuing function. Services functions are carried out through approximately 40 regional and district offices throughout Canada and abroad.

The Minister of Supply and Services reports to Parliament for Polymer Corporation Limited, Canadian Commercial Corporation, Canadian Arsenals Limited, Crown Assets Disposal Corporation and the Royal Canadian Mint.

**Tariff Board.**—Constituted in 1931, the Board derives its duties and powers from four statutes: the Tariff Board Act (RSC 1970, c. T-1); the Customs Act (RSC 1970, c. C-40); the Excise Tax Act (RSC 1970, c. E-13) and the Anti-dumping Act (RSC 1970, c. A-15).

Under the Tariff Board Act, the Board makes inquiry into and reports upon any matter in relation to goods that, if brought into Canada, are subject to or exempt from customs duties or excise taxes. Reports of the Board are tabled in Parliament by the Minister of Finance. It is also the duty of the Board to inquire into any other matter in relation to the trade and commerce of Canada that the Governor in Council sees fit to refer to the Board.

Under the provisions of the Customs Act, the Excise Tax Act and the Anti-dumping Act, the Tariff Board acts as a court to hear appeals from decisions of the Department of National Revenue, Customs and Excise, in respect of excise taxes, tariff classification, value for duty, drawback of customs duties and determination of normal value or export price in dumping matters. Declarations of the Board on appeals are final and conclusive but the Acts contain provisions for appeal on questions of law to the Federal Court and thence to the Supreme Court of Canada.

**Tax Review Board.**—The Tax Review Board, created in 1949 as the Income Tax Appeal Board and later changed to the Tax Appeal Board, now operates under the Tax Review Board Act 1970 (SC 1970-71, c. 11). The Board is declared by statute to be a court of record and has jurisdiction to hear appeals by taxpayers against their assessment under the Income Tax Act and also appeals under the Estate Tax Act, the Old Age Security Act and certain sections of the Canada Pension Plan. An appeal lies from the Board to the Federal Court of Canada and a further appeal from that court to the Supreme Court of Canada. The Board consists of a chairman, an assistant chairman and four other members. Its offices are located at Ottawa and it hears appeals at the principal centres throughout Canada approximately twice a year and at the main centres, such as Montreal and Toronto, ten times a year. The Board is under the jurisdiction of the Minister of Justice but is independent of the Department of Justice.

**Ministry of Transport.**—The role and structure of the former Department of Transport were changed and a Ministry was created Feb. 17, 1970. The new Ministry is a corporate structure of Crown corporations and operating administrations having varying degrees of autonomy, together with separate agencies for development and economic regulation. A Ministry headquarters staff supports the Minister and Deputy Minister in the functions of planning, policy formulation and assessment of program achievements in terms of the objectives of the Ministry.

The Canadian Marine Transportation Administration co-ordinates the functions of the St. Lawrence Seaway Authority, the National Harbours Board and the Marine Services components of the former Department of Transport. Its operations include management of the St. Lawrence Seaway through the St. Lawrence Seaway Authority and direct supervision of nine harbours and other facilities through the National Harbours Board; 300 public harbours and 11 others are administered by commissions under the supervision of the Ministry. It is also responsible for aids to navigation, search and rescue, nautical and pilotage services, marine agencies, steamship inspection and the Canadian Coast Guard.

The Canadian Air Transportation Administration controls and operates Canada's airways and federal airports and provides technical supervision in Canadian airspace of all aeronautical activities in the flight safety sense. These activities are conducted through the branches of Civil Aviation, Telecommunications and Electronics, Airports and Field Operations, Air Traffic Control, and Construction Engineering and Architectural, and the support branches of Corporate Planning, Finance and Personnel. The Canadian Air Transportation Administration also provides telecommunications and flight services to other components of the Ministry.

The Canadian Surface Transportation Administration has planning, programming and co-ordinating responsibilities relating to federal participation in the development and, where appropriate, operation of railway and highway systems, ferry services and bridges. The Administration has an ongoing interest in emerging technology in the area of new modes of surface transportation and their potential for application in new operating systems.



The recently organized Arctic Transportation Agency is responsible for developing and administering policy related to Ministry-supported transportation facilities and services in the Canadian North, in furtherance of the Government's national objectives there. Intermodal relationships between air, surface and marine transportation systems are a particular concern, as well as the compatibility of these systems with economic and technological growth in the North and with the needs of the residents. In this connection there is a special relationship between the Agency and the Department of Indian Affairs and Northern Development.

The Transportation Development Agency is responsible for initiating, promoting and co-ordinating transportation research and development activities, working closely with government agencies, industry and the academic community to provide a national focus for changing technology and development opportunities in the field of transportation.

The Ministry also includes Air Canada, Canadian National Railways, and Northern Transportation Company Limited. These three Crown corporations are autonomous, maintaining close consultation with the Minister to be consistent with the Government's general policies in the field of transportation. The Minister of Transport also reports to Parliament for the Canadian Transport Commission, the National Harbours Board and the St. Lawrence Seaway Authority.

**Treasury Board.**—The Treasury Board was first established as a committee of the Queen's Privy Council for Canada by Order in Council PC 3 of July 2, 1867, and was made a statutory committee in 1869. The Minister of Finance was appointed Chairman of the Board, with four other Privy Councillors to be designated as members by the Governor in Council. The Secretary of the Board and the members of his staff were employed by the Department of Finance.

By the Government Organization Act, 1966 (SC 1966, c. 25) the Board Secretariat was established as a separate department of government with its own Minister, the President of the Treasury Board. The committee constituting the Treasury Board includes, in addition to the President, the Minister of Finance and four other Privy Councillors.

Amendments to the Financial Administration Act, 1966 (RSC 1970, c. F-10), define more clearly the Treasury Board's responsibilities as the central management agency of government. These responsibilities include expenditure control, including allocation of resources among departments and agencies of government; management of the personnel function in the Public Service; and improvement in the efficiency of management and administration in the Public Service.

The staff of the Treasury Board is divided into four Branches: the Administrative Policy Branch is responsible for developing administrative and accounting procedures throughout the Government and policies systems and methods with respect to the acquisition, disposal and use of real property, equipment, materials, supplies and common services; the Planning Branch is responsible for the development and application of systems and procedures for evaluating the effectiveness and efficiency of programs and projects and for providing advice and planning assistance for organizational change in government; the Personnel Policy Branch is responsible for the classification of positions, the rates of pay, conditions of employment and for representing the Government in collective bargaining with bargaining agents representing employees in the Public Service; and the Program Branch is responsible for such matters as the financial management functions of short- and long-range expenditure forecasting, program analysis, expenditure control and estimates preparation.

**Department of Veterans Affairs.**—This Department, established in 1944 (RSC 1970, c. V-1), is concerned exclusively with the welfare of veterans and with the dependants of veterans and of those who died on active service. The Department is empowered to provide treatment services (hospital, medical, dental and prosthetic), welfare services, education assistance, life insurance, and land settlement and home construction assistance. The Veterans' Bureau, which on Mar. 31, 1971 (SC 1970-71, c. 31) became the Bureau of Pensions Advocates, assists veterans in the preparation and presentation of pension claims and reports directly to Parliament through the Minister of Veterans Affairs. The same statute authorized the establishment of the Pension Review Board, an independent body that provides new and improved adjudicating process of appeal for the veteran who is dissatisfied with a previous ruling of the Entitlement Board of the Canadian Pension Commission or a decision of two members of the Commission.

The Department has treatment institutions and facilities in nine major urban centres across Canada and it maintains administrative offices in the large cities and in London, England. The offices in Canada are shared with the Canadian Pension Commission, the War Veterans Allowance Board and the Bureau of Pensions Advocates.

The Canadian Pension Commission, established by the Pension Act (RSC 1970, c. P-7) and the War Veterans Allowance Board, established by the War Veterans Allowance Act (RSC 1970, c. W-5) report to Parliament through the Minister of Veterans Affairs.

**War Veterans Allowance Board.**—This Board, established under the authority of the War Veterans Allowance Act, 1930 (RSC 1970, c. W-5) is a quasi-judicial body consisting of 10 members, including a chairman and a deputy chairman, appointed by the Governor in Council. The Board administers the War Veterans Allowance Act and Part XI of the Civilian War Pensions and Allowances Act. It reports to Parliament through the Minister of Veterans Affairs. Its functions include the responsibility of ensuring that the 19 District Authorities, located in various regions throughout Canada, interpret the legislation in a fair, reasonable and equitable manner. It is also an appeal body which may consider the appeal of an appellant against the decision of a District Authority.



### Section 3.—Crown Corporations

During the past quarter-century, as the work of government has become more complex, greater reliance than formerly has been placed on the Crown corporation type of organization as the appropriate instrument for administering and managing many public services in which business enterprise and public accountability must be combined.

The use of the corporate device to harmonize public responsibility in the development of economic resources and the provision of public services with the pursuit of commercial and industrial objectives has led to the adoption of many different forms and formulas of management. The most usual practice has been to set up a corporation under the provisions of a special Act of Parliament which defines its purposes and sets forth its powers and responsibilities. However, during World War II the Minister of Munitions and Supply was authorized to procure the incorporation of companies under the federal Companies Act, 1934, or under any provincial Companies Act to which he might delegate any of the powers conferred on him under the Department of Munitions and Supply Act or any Order in Council. Under this legislation, about 28 companies were created to serve a wide variety of purposes; most of these companies have since been wound up.

Following the successful experience during the war years in relying on the Companies Act for the establishment of Crown companies, similar incorporating powers were granted by an amendment to the Research Council Act and have been incorporated in the Atomic Energy Control and the Defence Production Acts.

In 1946 the Government Companies Operation Act was passed to regulate the operation of companies formed under the Companies Act. However, it was applicable only to a relatively small number of companies and, in order to establish a more uniform system of financial and budgetary control and of accounting, auditing and reporting for Crown corporations generally, Part VIII of the Financial Administration Act was enacted in 1951 and brought into operation by proclamation on Oct. 1, 1952. Upon its enactment the financial provisions of the Government Companies Operation Act were repealed.

One of the more interesting features of the later legislation is the attempt that has been made to define and classify Crown corporations. The Act defines a Crown corporation as a corporation that is ultimately accountable, through a Minister, to Parliament for the conduct of its affairs and establishes three classes of corporation—departmental, agency and proprietary.

*Departmental Corporations.*—A departmental corporation is defined as a Crown corporation that is a servant or agent of Her Majesty in right of Canada and is responsible for administrative, supervisory or regulatory services of a governmental nature. The following corporations are classified as departmental corporations in Schedule B to the Financial Administration Act:—

- Agricultural Stabilization Board
- Atomic Energy Control Board
- Director of Soldier Settlement
- The Director, the Veterans' Land Act
- Economic Council of Canada
- Fisheries Prices Support Board
- Medical Research Council
- Municipal Development and Loan Board\*
- National Museums of Canada
- National Research Council
- Science Council of Canada
- Unemployment Insurance Commission.

*Agency Corporations.*—An agency corporation is defined as a Crown corporation that is an agent of Her Majesty in right of Canada and is responsible for the management of

\* See footnote to p. 154.

trading or service operations on a quasi-commercial basis or for the management of procurement, construction or disposal activities on behalf of Her Majesty in right of Canada. The following corporations are classified as agency corporations in Schedule C to the Financial Administration Act:—

- Atomic Energy of Canada Limited
- Canadian Arsenal Limited
- Canadian Commercial Corporation
- Canadian Dairy Commission
- Canadian Film Development Corporation
- Canadian Livestock Feed Board
- Canadian National (West Indies) Steamships Limited\*
- Canadian Patents and Development Limited
- Canadian Saltfish Corporation
- Centennial Commission\*
- Company of Young Canadians
- Crown Assets Disposal Corporation
- Defence Construction (1951) Limited
- National Battlefields Commission
- National Capital Commission
- National Harbours Board
- Northern Canada Power Commission
- Royal Canadian Mint.

*Proprietary Corporations.*—A proprietary corporation is defined as a Crown corporation that (1) is responsible for the management of lending or financial operations, or for the management of commercial or industrial operations involving the production of or dealing in goods and the supplying of services to the public, and (2) is ordinarily required to conduct its operations without parliamentary appropriations. The following corporations are classified as proprietary corporations in Schedule D to the Act:—

- Air Canada
- Canada Deposit Insurance Corporation
- Canadian Broadcasting Corporation
- Canadian Overseas Telecommunication Corporation
- Cape Breton Development Corporation
- Central Mortgage and Housing Corporation
- Eldorado Aviation Limited
- Eldorado Nuclear Limited
- Export Development Corporation
- Farm Credit Corporation
- Freshwater Fish Marketing Corporation
- National Railways, as defined in the Canadian National-Canadian Pacific Act, 1933
- Northern Transportation Company Limited
- Polymer Corporation Limited
- St. Lawrence Seaway Authority
- Seaway International Bridge Corporation Limited (formerly Cornwall International Bridge Company Limited)\*.

Departmental corporations are governed by the provisions of the Financial Administration Act that are applicable to departments generally. Agency and proprietary corporations, however, are subject to the provisions of the Crown corporations Part of the Act, although, if there is any inconsistency between the provisions of that Part and those of any

\* Not included in the thumbnail sketches. The Municipal Development Loan Board and the Centennial Commission are still in existence legally but are no longer operative. The Canadian National (West Indies) Steamships Limited no longer owns or operates vessels but still reports assets and the Seaway International Bridge Corporation Ltd. operates the international toll bridges system between Cornwall, Ont., and Roosevelt, N.Y., on behalf of the owners, the St. Lawrence Seaway Authority and the Saint Lawrence Seaway Development Corporation.

other Act applicable to a corporation, the Act provides that the latter prevail. There is provision in the Part for the control and regulation of such matters as corporation budgets and bank accounts, the turning over to the Receiver General of surplus money, loans for limited working-capital purposes, the awarding of contracts and the establishment of reserves, the keeping and auditing of accounts, and the preparation of financial statements and reports and their submission to Parliament through the appropriate Minister.

A further form of control is exercised by Parliament through the power to vote financial assistance to the corporation. The corporation may secure financing through parliamentary grants, loans or advances, by the issue of capital stock to the Government, or by the sale of bonds to either the Government or the public. Several corporations finance all or a portion of their requirements from their own resources or earnings.

Prior to 1952, Crown corporations did not pay corporate income taxes. However, the Income Tax Act was later amended so that, in respect of financial years commencing after Jan. 1, 1952, proprietary Crown corporations pay taxes on income earned in the same manner as any privately owned corporation. One desirable result of this amendment is that the financial statements of these Crown companies are now more comparable with those of private industry, with which in some instances they are in competition, and thus it is easier to assess the relative efficiency of their operations. Crown corporations are also liable for the payment of provincial retail sales taxes, gasoline or motor vehicle fuel taxes and motor vehicle fees in terms of the Crown Corporations (Provincial Taxes and Fees) Act of 1964.

*Unclassified Corporations.*—The following Crown corporations, because of the special nature of their operations, are not classified in the Financial Administration Act but are governed by their own Acts of incorporation: the Bank of Canada; the Canada Council; the Canadian National Railways Securities Trust; the Canadian Wheat Board; the Industrial Development Bank; and the National Arts Centre Corporation. The only provision of the FAA to which they are subject is that governing the appointment of auditors. The Eastern Rockies Forest Conservation Board (a joint federal-provincial corporation) is also governed by its own Act of incorporation.

**Agricultural Stabilization Board.**—The Board was established in 1958 (RSC 1970, c. A-9) to administer the provisions of the Agricultural Stabilization Act. The Board reports to Parliament through the Minister of Agriculture and routine administrative matters are handled through departmental channels.

**Air Canada.**—Formerly Trans-Canada Air Lines, the corporation was incorporated by Act of Parliament in 1937 to provide a publicly owned air transportation service, with powers to carry on its business throughout Canada and outside of Canada. Air Canada now maintains passenger, mail and commodity traffic services over nation-wide routes and also services to the United States, England, Scotland, Ireland, Belgium, France, Switzerland, West Germany, Austria, Denmark, the Soviet Union, Czechoslovakia, Bermuda, the Bahamas, Jamaica, Antigua, Barbados and Trinidad. Air Canada is responsible to Parliament through the Minister of Transport.

**Atomic Energy Control Board.**—By Act of Parliament (RSC 1970, c. A-19) proclaimed October 1946, the regulation and control of atomic energy in Canada was placed under the Atomic Energy Control Board. The Board reports to Parliament through the Minister of Energy, Mines and Resources.

**Atomic Energy of Canada Limited.**—This Crown company was incorporated in February 1952 under the Atomic Energy Control Act, 1946 (RSC 1970, c. A-19) to take over from the National Research Council on Apr. 1, 1952 the operation of the Chalk River project. The main activities of the company are (a) the development of economic nuclear power, (b) scientific research and development in the atomic energy field, (c) the operation of nuclear reactors and (d) the production of radioactive isotopes and associated equipment such as Cobalt-60 beam therapy units for the treatment of cancer. The company reports to Parliament through the Minister of Energy, Mines and Resources.

**Bank of Canada.**—Legislation of 1934 (RSC 1970, c. B-2) provided for the establishment of a central bank in Canada, the function of which is to regulate credit and currency, to control and protect the external value of the Canadian dollar and to stabilize the level of production, trade, prices and employment as far as may be possible within the scope of monetary action. The Bank acts as the



fiscal agent of the Government of Canada, manages the public debt and has the sole right to issue notes for circulation in Canada. The Bank is managed by a Board of Directors appointed by the Government and composed of a governor, a deputy governor and 12 directors; the Deputy Minister of Finance is also a member of the Board. The Bank reports to Parliament through the Minister of Finance.

**Canada Council.**—The Council was established by Order in Council dated Apr. 15, 1957, under the terms of the Canada Council Act (RSC 1970, c. C-2) assented to Mar. 28, 1957. It is composed of a chairman, a vice-chairman and 19 other members, a director and an associate director. The function of the Council is to encourage the arts, humanities and social sciences in Canada, mainly through a broad program of fellowships and grants. Its principal sources of income are an annual grant of the Canadian Government, which amounted to \$24,200,000 for the year ended Mar. 31, 1971, and to \$24,310,000 for the year ended Mar. 31, 1972, and an Endowment Fund, originally of \$50,000,000, which has an annual yield of approximately \$4,900,000. In the making, managing and disposing of investments under the Act, the Council has the advice of an Investment Committee of five, including the chairman and another member of the Council. The proceedings of the Council are reported each year to Parliament through the Secretary of State.

**Canada Deposit Insurance Corporation.**—The Corporation was established by legislation (RSC 1970, c. C-3), which received Royal Assent on Feb. 17, 1967. It is empowered to insure Canadian currency deposits other than those of Canada, up to \$20,000 per person, in banks, federally incorporated trust and loan companies that accept deposits from the public, and in similar provincially incorporated institutions that are authorized by their provincial governments to apply for such insurance. The Corporation is also empowered to act as a lender of last resort for member institutions. The Board of the Corporation comprises a chairman, appointed by the Governor in Council, and four other directors who hold the positions of Governor of the Bank of Canada, Deputy Minister of Finance, Superintendent of Insurance and Inspector General of Banks. It reports to Parliament through the Minister of Finance.

**Canadian Arsenals Limited.**—The principal function of this Crown corporation is to operate the government-owned facilities for the production of certain defence materiel. It was established under the Companies Act by Letters Patent dated Sept. 20, 1945, and is subject to the Government Companies Operation Act (RSC 1970, c. G-7) and certain provisions of the Financial Administration Act (RSC 1970, c. F-10). It reports to Parliament through the Minister of Supply and Services.

**Canadian Broadcasting Corporation.**—The CBC was established by Act of Parliament in 1936, replacing an earlier public broadcasting agency, the Canadian Radio Broadcasting Commission, created in 1932. The Broadcasting Act of 1968 (RSC 1970, c. B-11) describes the CBC as "established by Parliament for the purpose of providing the national broadcasting service".

The Corporation has a president and fourteen other directors appointed by the Governor in Council. The President is the chief executive officer. The Executive Vice-President is appointed by the Corporation on the recommendation of the President and with the approval of the Governor in Council. He is responsible to the President for the management of broadcasting operations in accordance with policies prescribed by the Corporation.

CBC operations are financed by public funds voted annually by Parliament, with supplementary revenue obtained from commercial advertising. The CBC's accounts are audited annually by the Auditor General of Canada and the Corporation reports annually to Parliament through the Minister designated in the Broadcasting Act, the Secretary of State of Canada.

The CBC head office is located in Ottawa. The Corporation's three operational divisions are the English Services Division with headquarters in Toronto; the French Services Division with headquarters in Montreal; and the External Services Division encompassing all the CBC's foreign operations including the Montreal-based International Service. Regional and local production centres, serving their own areas and also contributing to national programming, are located at various points across the country.

**Canadian Commercial Corporation.**—Established in 1946 by Act of Parliament (RSC 1970, c. C-6), the Canadian Commercial Corporation is wholly owned by the Government of Canada. Initially it assumed the undertaking of the then Canadian Export Board covering procurement in Canada of goods and services on behalf of foreign governments and United Nations relief agencies. In 1947 responsibility for procurement of the requirements of the Department of National Defence was transferred from the Department of Reconstruction and Supply to the Corporation which fulfilled these additional functions until the formation of the Department of Defence Production in 1951. In 1963 the staff of the Corporation was integrated with that of the Department of Defence Production, now the Department of Supply and Services, which provides all the management and services required by the Corporation.

The Corporation continues to act primarily as the Canadian Government contracting and procurement agency on behalf of foreign countries desirous of purchasing defence or other supplies and services from Canada on a government-to-government basis. It reports to Parliament through the Minister of Supply and Services.

**Canadian Dairy Commission.**—This Commission, which reports to Parliament through the Minister of Agriculture, was established on Dec. 2, 1966 (RSC 1970, c. C-7) to provide efficient producers of milk and cream with the opportunity of obtaining a fair return for their labour and investment and to provide consumers of dairy products with a continuous and adequate supply of dairy products of high quality. The Commission has three members appointed by the Governor in Council and operates with the advisory assistance of a nine-member Consultative Committee appointed by the Minister.

**Canadian Film Development Corporation.**—This Corporation, established by Act of Parliament in March 1967 (RSC 1970, c. C-8), has the function of fostering and promoting the development of a feature film industry in Canada through investment in productions, loans to producers, grants to film-makers and film technicians, awards for outstanding accomplishments, and advice and assistance in distribution and administrative matters. It works in co-operation with other federal departments and agencies and with provincial departments and agencies having like interests and finances its operations from a film development advance account in the Consolidated Revenue Fund. The Corporation consists of the Government Film Commissioner and six other members appointed by the Governor in Council for terms of five years, except for the first appointees, three of whom were appointed for three years and three for five years. The Corporation reports to Parliament through the Secretary of State.

**Canadian Livestock Feed Board.**—The Canadian Livestock Feed Board is a Crown corporation established pursuant to the Livestock Feed Assistance Act (RSC 1970, c. L-9). The objects of the corporation are to ensure that sufficient feed grain and storage for feed grain are available to meet the needs of livestock feeders and to ensure reasonable stability and fair equalization of feed grain prices in Eastern Canada and in British Columbia. Its powers include authority to make payments related to the cost of feed grain storage and transportation costs to attain its objectives. It may also buy, transport, store and sell feed grains in Eastern Canada and British Columbia when authorized by the Governor in Council.

The Board consists of a chairman, a vice-chairman and two members, and it reports to Parliament through the Minister of Agriculture. There is also an Advisory Committee made up of seven members.

**Canadian National Railways.**—The Canadian National Railway Company was incorporated (RSC 1970, c. C-10) to operate and manage a national system of railways, including the Canadian Northern Railway System, the Canadian Government Railways and all lines entrusted to it by Order in Council. In 1923 the Grand Trunk Railway Company of Canada was amalgamated with the Canadian National Railway Company and since 1923 a number of railway lines acquired by the Government have been entrusted to the Company for operation and management, including the Newfoundland Railway and steamship services in 1949, the Témiscouata Railway in 1950, and the Hudson Bay Railway and the Northwest Communication System in 1958. The Canadian National Railways Act, 1919 was repealed in 1955 and the Canadian National Railways Act (SC 1955, c. 29) substituted therefor.

The Canadian National Railway Company is controlled by a chairman and board of directors appointed by the Governor in Council, who report to Parliament through the Minister of Transport.

**Canadian Overseas Telecommunication Corporation.**—This Crown company was created on Jan. 1, 1950 by Act of Parliament (RSC 1970, c. C-11) to acquire for public operation external telecommunication assets in Canada, in keeping with the Commonwealth Telegraph Agreement signed May 11, 1948. This Agreement was designed to bring about the consolidation and strengthening of the radio and cable communication systems of the Commonwealth. The Corporation reports to Parliament through the Minister of Communications.

**Canadian Patents and Development Limited.**—This Crown corporation was set up in 1947 pursuant to authority granted in an amendment to the National Research Council Act passed in 1946. The purpose of the company, which is a subsidiary to the National Research Council, is to patent and license new products and processes that come out of NRC research, research of other government departments and agencies, and research of Canadian universities. Proposals for patents are assessed with regard to originality, existence of similar patented products or processes, commercial appeal, humanitarian or scientific value, and cost of developing, promoting and marketing. CPDL initiates and finances the development of many inventions to a stage where it is economically possible for private industry to carry them through to production and sale, thus bridging the gap between research and industry. Profits from inventions are used to sponsor less profitable but often more beneficial inventions, such as highly specialized surgical or scientific instruments.

The company, whose Head Office is located at 275 Slater St., Ottawa, reports to Parliament through a designated Minister, at present the President of the Treasury Board.

**Canadian Saltfish Corporation.**—The Canadian Saltfish Corporation was established under the Saltfish Act (SC 1969-70, c. 32), assented to on Mar. 25, 1970, and became operative on May 4, 1970. Its main purpose is to improve the earnings of fishermen and other primary producers of cured saltfish. It does this by the purchase, processing, packing and marketing of the fish produced in

participating provinces. In 1971, these provinces were Newfoundland and Labrador, and Quebec in respect of its lower north shore. The Corporation operates without grant appropriation from Parliament and distributes any excess of income over expenses to participating fishermen and other primary producers. It reports to Parliament through the Minister of the Environment.

**Canadian Wheat Board.**—The Board was incorporated in 1935 under the Canadian Wheat Board Act (RSC 1970, c. C-12) to market, in an orderly manner, in the interprovincial and export trade, grain grown in Canada. Its powers include authority to buy, take delivery of, store, transfer, sell, ship or otherwise dispose of grain. Except as directed by the Governor in Council, the Board was not originally authorized to buy grain other than wheat but, since Aug. 1, 1949, it may also buy oats and barley if authorized to do so by Regulation approved by the Governor in Council. Only grain produced in the designated area, which includes Manitoba, Saskatchewan, Alberta and parts of British Columbia and Ontario, is purchased by the Board, which controls the delivery of grain into elevators and railway cars in that area as well as the interprovincial movement and export of wheat, oats and barley generally. The Board reports to Parliament through a designated Minister.

**Cape Breton Development Corporation.**—This Corporation was created by an Act of Parliament, assented to on July 7, 1967 (RSC 1970, c. C-13) and came into existence by proclamation on Oct. 1, 1967, as a proprietary Crown corporation. The Corporation was established to promote and assist the financing and development of industry on the Island and to provide employment outside the coal producing industry to broaden the base of the economy of the Island.

The Corporation has acquired the former interests of the major coal producer in the Sydney coalfield and, in accordance with its approved plan as required by Sect. 17 of the Act, is operating and reorganizing four mines with a view to the rationalization of coal production.

The Act provides for a board of directors, comprised of a chairman, a president and five other directors. Head Office is located in Sydney, N.S. The Corporation reports to Parliament through the Minister of Regional Economic Expansion. Its operations are financed by the Government of Canada with some assistance from the Government of Nova Scotia for industrial development projects.

**Central Mortgage and Housing Corporation.**—This Corporation was incorporated by Act of Parliament (RSC 1952, c. 46) in December 1945 to administer the National Housing Acts. Under the National Housing Act, 1954 (RSC 1970, c. C-16), the Corporation insures mortgage loans made by approved lenders for new and existing housing and makes direct loans in resource communities and rural areas; guarantees home improvement loans made by banks, undertakes subsidized rental housing projects and land assembly developments under federal-provincial arrangements; offers loans and subsidies for public housing projects; makes loans for land assembly projects to be used for general residential development; makes loans to individuals or organizations for low-rental housing projects; makes loans for students' housing and to provinces and municipalities with provincial concurrence for sewage treatment projects designed to eliminate water and soil pollution; makes contributions and loans to provinces and municipalities for urban renewal operations; conducts housing research; encourages urban planning and owns and manages rental housing units including those built for war workers and veterans. The Corporation arranges for and supervises construction of housing projects on behalf of the Department of National Defence and other government departments and agencies. The Corporation is responsible to Parliament through the Minister of State for Urban Affairs.

**Company of Young Canadians.**—This corporation was established by Act of Parliament on July 11, 1966, amended in 1969. It now operates under authority of RSC 1970, c. C-26. The corporation consists of a Council of the Company and persons who are officers, employees and volunteer-members of the Company. The Council has not more than nine members and not less than seven members appointed by the Governor in Council. Terms of office for members of the Council do not exceed three years. The objects of the Company are to support, encourage and develop programs for social, economic and community development in Canada through voluntary service. The corporation reports to Parliament through the Secretary of State.

**Crown Assets Disposal Corporation.**—This Corporation was established in 1944 as the War Assets Corporation under the Surplus Crown Assets Act (RSC 1970, c. S-20) and is subject to the Financial Administration Act (RSC 1970, c. F-10). It replaced the War Assets Corporation Limited which had been incorporated in 1943 and its name was changed to Crown Assets Disposal Corporation in 1949. The Corporation is responsible for the sale of Federal Government surplus real estate and commodities located in Canada and at Canadian Government establishments throughout the world. It also acts as agent on behalf of foreign governments in selling their surplus assets located in Canada and has reciprocal agreements with a number of European countries for marketing Canadian surplus assets located in their respective countries. The Corporation is responsible to Parliament through the Minister of Supply and Services.

**Defence Construction (1951) Limited.**—Defence Construction (1951) Limited, reporting to the Minister of National Defence, is the Crown agency that procures for the Department of National Defence the construction and repair of buildings, structures and engineering works and professional engineering and architectural services.



The forerunner of the present company, Defence Construction Limited, began operation in November 1950 as a Crown agency responsible for awarding and supervising defence construction projects. Defence Construction (1951) Limited, incorporated July 12, 1951, under authority of the Defence Production Act, took over the responsibilities of the former agency.

The company's prime responsibility in contracting for all new construction and repair and renovation projects (except contracts under \$10,000 which are arranged for the Department of National Defence via the Department of Supply and Services) includes: participation in preparation of design; calling and reviewing of tenders; award and administration of contracts; supervision of construction work; and certification of progress claims for work completed. Activities cover four distinct spheres: defence projects in Canada for the Department of National Defence; all defence projects in Europe for the Department of National Defence under the North Atlantic Treaty Organization Agreement; defence construction for the United States Government in Canada; and, by arrangement, acting as the contract agents or technical advisers on the rendering of assistance to other federal departments and agencies.

The head office of the agency is located at Ottawa and branch offices are maintained at Halifax, Montreal, Toronto, Winnipeg and Vancouver in Canada and in Lahr, Germany.

**Director of Soldier Settlement and Director of the Veterans' Land Act.**—The Director of Soldier Settlement (under the Act of 1919) is also the Director of the Veterans' Land Act, and in each capacity is legally a corporation sole. For administrative purposes, however, the programs carried on under both Acts constitute integral parts of the services provided by the Department of Veterans Affairs.

**Eastern Rockies Forest Conservation Board.**—The Board was appointed in 1947 under the Eastern Rocky Mountain Forest Conservation Act which authorized an agreement between the Government of Canada and the Province of Alberta relating to the protection and conservation of the forests of that portion of the eastern slope of the Rocky Mountains which gives rise to the major tributaries of the Saskatchewan River. Its function is to determine the policy necessary to obtain the greatest possible flow of water in the Saskatchewan River system. The planning of programs of forest use and conservation is a joint duty of the Board and the provincial Forest Service; the administration of the conservation area is a function of the province. In April 1962, a Technical Co-ordinating Committee for Watershed Research was established to undertake study of the related needs defined by the Board. The Committee's programs, undertaken by seven co-operating agencies of the Federal and Alberta Governments, are co-ordinated by an officer of the federal Department of the Environment.

Funds for capital expenditures during the first seven years of the agreement were provided by the Federal Government with maintenance expenditures being paid by the Province of Alberta. In 1955 the province undertook the responsibility of financing both capital improvements and maintenance work. Currently, one member of the three-man Board is appointed by the Federal Government and the province has the right to appoint two members. The choice of one of the three members as Board chairman is vested in the province. The Board reports to Parliament through the Minister of the Environment.

**Economic Council of Canada.**—This corporation, established under legislation passed on Aug. 2, 1963 (RSC 1970, c. E-1), consists of a full-time chairman and two full-time directors appointed for a term not to exceed seven years and not more than 25 additional members to serve part-time and without remuneration. The Council is to be as representative as possible of labour, agriculture and primary industries, secondary industry and commerce, and the general public. Its functions are to advise and recommend measures that will achieve in Canada the highest possible levels of employment and efficient production so that the country may enjoy a high and consistent rate of economic growth and that all Canadians may share in rising living standards; to promote and expedite continuing improvement in productive efficiency in the various aspects of Canadian economic activity; and to publish an annual review of medium- and long-term economic prospects and problems. The Council reports to Parliament through the Prime Minister.

**Eldorado Aviation Limited.**—This company was incorporated Apr. 23, 1953 to carry air traffic, both passenger and freight, for Eldorado Nuclear Limited and its wholly owned subsidiary, Northern Transportation Company Limited. It reports to Parliament through the Minister of Energy, Mines and Resources.

**Eldorado Nuclear Limited.**—Set up in 1944 under the name of Eldorado Mining and Refining (1944) Limited (the date was omitted in June 1952 and the name changed in 1968), the company's business is the mining and refining of uranium and the production of nuclear fuels in Canada. The company has also entered into contracts for the purchase of uranium concentrates from private producers in Canada. It reports to Parliament through the Minister of Energy, Mines and Resources.

**Export Development Corporation.**—This Corporation, under authority of the Export Development Act (RSC 1970, c. E-18), succeeded the 25-year-old Export Credits Insurance Corporation on Oct. 1, 1969. Its purpose is to facilitate the development of Canada's export trade by the provision of expanded insurance, guarantee, loan and other financial facilities which enable Canadian firms to meet international credit competition. It reports to Parliament through the Minister of Industry,

Trade and Commerce. Its affairs are administered by a 12-man board of directors. The chairman and six other directors are appointed from among persons employed in the Public Service of Canada, the remaining five from private business. The Corporation's functions are: to insure Canadian exporters against non-payment by foreign buyers due to credit or political risks over which neither buyer nor seller has any control; to issue guarantees to persons in respect of the financing of exports; to make loans to foreign buyers or to issue guarantees in respect of the purchase of capital goods or major services from Canada involving extended credit terms; and to insure Canadian investments abroad against non-commercial risks such as war or revolution, expropriation or confiscation, or the inability to repatriate capital or earnings.

**Farm Credit Corporation.**—This Corporation was established on Oct. 5, 1959 (RSC 1970, c. F-2) for the purpose of providing for the extension of long-term mortgage credit to farmers. The Corporation also administers the Farm Syndicates Credit Act and is responsible to Parliament through the Minister of Agriculture.

**Fisheries Prices Support Board.**—The Board was set up under the Fisheries Prices Support Act of 1944 (RSC 1970, c. F-23) to recommend to the Government price support measures when severe price declines occur. The Board functions under the direction of the Minister of the Environment and consists of a chairman, who is a senior officer of the Department and five members chosen from private and co-operative firms in the industry. The Board has authority to buy fish products and to sell or otherwise dispose of them or to pay producers the difference between a price prescribed by the Board and the average price the product actually commands.

**Freshwater Fish Marketing Corporation.**—This Corporation was established under the Freshwater Fish Marketing Act (RSC 1970, c. F-13) which received Royal Assent on Feb. 27, 1969, and given the function of marketing and trading in fish, fish products and fish byproducts in and out of Canada with the objective of ensuring more orderly marketing for the benefit of the whole fishery and achieving higher and more stable prices for the catch. The Corporation received a grant for initial operating and establishment expenses but conducts its operations on a self-sustaining basis without parliamentary appropriations; it is financed by bank loans with government guarantee of repayment or by direct loans. The Corporation consists of a board of directors composed of a chairman, a president, one director for each participating province and four other directors appointed by the Governor in Council for a term not exceeding five years. The Corporation reports to Parliament through the Minister of the Environment.

**Industrial Development Bank.**—The Bank, a subsidiary of the Bank of Canada, was incorporated in 1944 to supplement the activities of other lenders with particular consideration to the financing problems of small enterprises.

**Medical Research Council.**—Established in 1969 and operating under authority of RSC 1970, c. M-9, the Council is an autonomous agency of the Federal Government. It is composed of a president, a vice-president, and 20 members. The primary aim of the Council is the support and development of research in the health sciences in Canadian universities and affiliated institutions. It reports to Parliament through the Minister of National Health and Welfare.

**National Arts Centre Corporation.**—The Act establishing this Corporation (RSC 1970, c. N-2) was assented to July 15, 1966. The Corporation consists of a Board of Trustees composed of a chairman, a vice-chairman, the Mayors of Ottawa and Hull, the Director of the Canada Council, the President of the Canadian Broadcasting Corporation, the Government Film Commissioner and nine other members appointed by the Governor in Council for terms not exceeding three years, except for the first appointees whose terms range from two to four years. The objects of the Corporation are to operate and maintain the National Arts Centre, to develop the performing arts in the National Capital Region and to assist the Canada Council in the development of the performing arts elsewhere in Canada. The Corporation reports to Parliament through the Secretary of State.

**National Battlefields Commission.**—This Commission was established by Act of Parliament in 1908 to preserve the Historic Battlefields at Quebec City. The Commission is composed of nine members, seven appointed by the Federal Government and one each by the Provinces of Ontario and Quebec. The Commission is supported by annual appropriations of the Federal Government and is responsible to Parliament through the Minister of Indian Affairs and Northern Development.

**National Capital Commission.**—This Commission, successor to the Federal District Commission, is a Crown agency created by the National Capital Act (RSC 1970, c. N-3), proclaimed Feb. 6, 1959. Headed by a chairman, it is made up of 20 members, representing the 10 provinces of Canada, and its work force fluctuates between 600 and 850, depending on the season.

The Commission is responsible for the acquisition, development and maintenance of public lands in the National Capital Region; it co-operates with municipalities by providing planning aid or financial assistance in municipal projects of benefit to the region; and advises the Department of Public Works on the siting and appearance of all Federal Government buildings in the 1,800-sq. mile National Capital Region. The Commission reports to Parliament through the Minister of State for Urban Affairs.

**National Harbours Board.**—The Board was established by Act of Parliament in 1936 (RSC 1970, c. N-8). It is responsible for the administration of port facilities at the harbours of St. John's, Nfld.; Halifax, N.S.; Saint John, N.B.; Chicoutimi, Quebec, Trois-Rivières and Montreal, Que.; Vancouver, B.C.; and Churchill, Man.; the Jacques Cartier and Champlain Bridges at Montreal, Que.; and the grain elevators at Prescott and Port Colborne, Ont. The Board reports to Parliament through the Minister of Transport.

**National Museums of Canada.**—The National Museums of Canada is a departmental Crown corporation established Apr. 1, 1968, by the National Museums Act (RSC 1970, c. N-12). The corporation was established to join under one administration the four existing museum activities: the National Gallery of Canada; the National Museum of Man (including the Canadian War Museum); the National Museum of Natural Sciences; and the National Museum of Science and Technology (including the National Aeronautical Collection). The corporation reports to Parliament through the Secretary of State.

The Board of Trustees is composed of the Director of the Canada Council, the President of the National Research Council, and 10 other members. All members of the Board are appointed by the Governor in Council for fixed terms of office.

The purposes of the corporation, according to the Act, are "to demonstrate the products of nature and the works of man, with special but not exclusive reference to Canada, so as to promote interest therein throughout Canada and to disseminate knowledge thereof". To these ends the corporation is empowered to: (a) collect, classify, preserve and display objects relevant to its purposes; (b) undertake or sponsor research relevant to its purposes; (c) arrange for and sponsor traveling exhibitions of materials in, or related to, its collections; (d) arrange for the publication or acquisition and the sale to the public of books, pamphlets, replicas and other materials related to its purposes; (e) undertake or sponsor programs for the training of persons in the professions and skills involved in the operation of museums; (f) arrange for or provide professional and technical services to other organizations whose purposes are similar to any of those of the corporation on such terms and conditions as may be approved by the Minister; and (g) generally, do and authorize such things as are incidental or conducive to the attainment of the purposes of the corporation and the exercise of its powers.

**National Research Council of Canada.**—This is an agency of the Canadian Government established in 1916 to promote scientific and industrial research. The Council operates science and engineering laboratories in Ottawa, Halifax and Saskatoon; gives direct financial support to research carried out in Canadian university and industrial laboratories; sponsors associate committees co-ordinating research on specific problems of national interest; and develops and maintains the nation's primary physical standards. The Federal Government has designated NRC as the co-ordinating body for the further development of a national scientific and technical information system (STI), under the general direction of the National Librarian. Other activities include the provision of free technical information to manufacturing concerns; the publication of research journals; and representation of Canada in International Scientific Unions. Patentable inventions developed in the Council's laboratories are made available for manufacture through a subsidiary company, Canadian Patents and Development Limited. The National Research Council consists of a president, three vice-presidents, and 17 members representing Canadian universities, industry and labour. The Council is incorporated under the National Research Council Act (RSC 1970, c. N-14) and reports to Parliament through a designated Minister, at present the President of the Treasury Board.

**Northern Canada Power Commission.**—The Commission was established by Act of Parliament in 1948 (RSC 1970, c. N-21) to provide power to points in the Northwest Territories where a need developed and where power could be supplied on a self-sustaining basis; the Act was amended in 1950 to give the Commission authority to provide similar services in the Yukon Territory. The name of the Commission (formerly the Northwest Territories Power Commission) was changed in 1956. It is composed of the Deputy Minister of Indian Affairs and Northern Development, who is chairman, and two members appointed by the Governor in Council and reports to Parliament through the Minister of Indian Affairs and Northern Development.

The Commission operates three hydro-electric plants in the Northwest Territories (two on the Snare River near Yellowknife and one on the Taltson River near Fort Smith) and two hydro plants in the Yukon Territory (one on the Yukon River at Whitehorse and the other on the Mayo River near Mayo). Diesel-electric plants and distribution systems are operated at Fort Smith, Fort Simpson, Fort Resolution, Fort McPherson, Fort Good Hope, Norman Wells, Baker Lake, Chesterfield Inlet and Cambridge Bay, N.W.T., at Dawson, Y.T., and at Field, B.C.; diesel-electric power and central heating plants at Inuvik and Frobisher Bay, N.W.T., and at Moose Factory, Ont.; and water supply and sewerage systems at Inuvik and Moose Factory. The Commission also operates, on behalf of the Government of the Northwest Territories, the diesel-electric plant at Aklavik, and heating plants and domestic water supply and sewerage systems at Fort McPherson and Fort Simpson. In the City of Dawson, the Commission operates the domestic water and sewerage system on behalf of the Government of the Yukon Territory.



**Northern Transportation Company Limited.**—This Company was incorporated in 1947 under the title of Northern Transportation Company (1947) Limited, the date being omitted from the name in 1952. Previously a company chartered under an Alberta statute, it has been a wholly owned subsidiary of Eldorado Nuclear Limited since that Crown company was established and carries out the business of a common carrier in the Mackenzie River watershed and the western Arctic. The Company is responsible to Parliament through the Minister of Transport.

**Polymer Corporation Limited.**—This Corporation was incorporated in 1942 by Letters Patent and is subject to the Government Companies Operation Act (RSC 1970, c. G-7) and the Financial Administration Act (RSC 1970, c. F-10). Its head office and main plant are located at Sarnia, Ont., where it produces synthetic rubbers, latexes, resins and related products. A subsidiary operation for the production of butyl is located in Belgium, and another subsidiary in France is responsible for production of general purpose and specialty rubbers for the European market. An international marketing subsidiary is located in Switzerland. The Company reports to Parliament through the Minister of Supply and Services.

**Royal Canadian Mint.**—The Royal Canadian Mint has been in operation since 1908. It was first established as a branch of the Royal Mint under the (Imperial) Coinage Act of 1870, and opened on Jan. 2, 1908. On Dec. 1, 1931, it became the Royal Canadian Mint and operated as a branch of the Department of Finance. In 1969, the Mint became a Crown agency corporation, reporting to Parliament through the Minister of Supply and Services. It operates under authority of RSC 1970, c. R-8.

The latter change was made to provide for a more industrial type of organization and for flexibility in producing coins of Canada and other countries; buying, selling, melting, assaying and refining gold and other precious metals; and producing medals, plaques and other devices. The Mint has a seven-man board of directors appointed by the Governor in Council—the Master of the Mint who is its chief executive officer appointed to serve during pleasure, the Chairman who is appointed for a four-year period, subject to re-appointment, and five other Directors, two from inside and three from outside the Public Service, who are appointed for terms of three years. The Mint now operates basically as a manufacturing enterprise, with the object of making a small profit. Financial requirements are provided through loans from the Consolidated Revenue Fund.

**Science Council of Canada.**—The Science Council of Canada was established in 1966 (RSC 1970, c. S-5) and became a Crown corporation on Apr. 1, 1969. The Council consists of 25 members each having a specialized interest in science or technology and four associate members chosen from among officers or employees of the Federal Government. Members hold office for terms of not more than three years and associate members hold office during pleasure. All are appointed by the Governor in Council. The duties of the Science Council are to assess in a comprehensive manner Canada's scientific and technological resources, requirements and potentialities and to make recommendations thereon. The Council reports to Parliament through a designated Minister, at present the Prime Minister.

**St. Lawrence Seaway Authority.**—The St. Lawrence Seaway Authority was established by Act of Parliament in 1951 (RSC 1970, c. S-1) and came into force by proclamation on July 1, 1954. The Authority was incorporated for the purposes of constructing, maintaining and operating all such works as may be necessary to provide and maintain, either wholly in Canada or in conjunction with works undertaken by an appropriate authority in the United States, a deep waterway between the Port of Montreal and Lake Erie. The Crown corporation, Seaway International Bridge Corporation Limited, is subsidiary to the St. Lawrence Seaway Authority. The Authority is composed of a president, a vice president and a member, and reports to Parliament through the Minister of Transport.

**Unemployment Insurance Commission.**—The Commission was established under the provisions of the Unemployment Insurance Act, 1940 (RSC 1970, c. U-2); the Act was revised in 1955 and again in 1971. It administers the Unemployment Insurance Act and performs other duties which the Minister of Labour may require.

The function of the Commission is to provide employees with insurance and, subject to regulations, make weekly payments to them for a limited time during periods of unemployment. Under the 1971 legislation, about 1,200,000 more people are covered; only eight weeks of insured employment are required to qualify for some benefits; and under certain conditions an interruption of earnings caused by sickness or maternity can be covered. There is a minimum benefit rate of \$20 and a maximum benefit rate of \$100 weekly. Services of the Commission were also expanded to include a Claimant Assistance Program to help people become re-employed.

Three commissioners, consisting of the Chairman who is Chief Executive Officer, one Commissioner representing employees and one representing employers, operate the Commission. It functions at three levels—head office in Ottawa, five regional offices and a number of district and other offices across the country. The Commission reports to Parliament through the Minister of Labour.

## PART IV.—FEDERAL AND PROVINCIAL GOVERNMENT EMPLOYMENT

### Federal Government Employment

The Treasury Board (a statutory Committee of Cabinet) has over-all responsibility for personnel management in the federal Public Service. Its role is to develop and ensure the application of personnel policies, systems and methods in order that the human resources needed to carry out programs effectively are obtained at competitive prices and used efficiently with due regard for the individual and collective rights of employees.

The Public Service Commission (an independent agency responsible directly to Parliament) ensures that staffing requirements of departments and agencies are met in accordance with the merit principle, operates staff development and training programs, including language training, and establishes appeal boards to hear and render decisions on appeals that employees have a right to lodge pursuant to the Public Service Employment Act.

**Treasury Board.**—Under provisions of the amended Financial Administration Act and the Public Service Staff Relations Act, both proclaimed on Mar. 13, 1967, the Treasury Board is responsible for the development of personnel policies, regulations, standards and programs in the areas of classification and pay, conditions of employment, collective bargaining and staff relations, bilingualism, organization and establishments, manpower training, development and utilization, pensions, insurance and other employee benefits.

**Manpower.**—The Treasury Board is concerned with the development, implementation, maintenance and evaluation of policies, programs and procedures for the accurate determination, allocation, development and efficient utilization of employees needed in the Public Service to carry out programs effectively. These measures are aimed at improving the effective use of manpower resources in the Public Service and include recommendations on organization development, manpower planning, the determination and evaluation of training needs and educational programs, and advice to departments and agencies on the design and implementation of systems to achieve improvements in manpower management.

**Classification.**—The Treasury Board develops and maintains classification systems and standards for the 73 occupational groups into which the Public Service is divided. Classification standards contain criteria for measuring the relative value of jobs within groups of positions with like functions. One of the objectives of the classification system is the extensive delegation of authority to departments to classify positions in order to strengthen the management process in departments and contribute to accurate and expeditious classification decisions. Historically, both the responsibility for and the actual administration of classification has been done by central agencies but, under a program of progressive delegation, the Treasury Board has granted authority to most departments to classify most of their own positions without reference to the Board Secretariat. The Board retains authority for the classification of jobs in key areas and, through its staff, provides classification services to small departments and agencies, monitors and audits the work of departments with delegated authority and responds to classification grievances and challenges.

**Compensation.**—The Treasury Board develops, administers and monitors policies governing compensation and conditions of service for the Public Service, the Canadian Armed Forces and the Royal Canadian Mounted Police. It is the principal source of technical advice required in the bargaining process with respect to Public Service employees covered by collective bargaining and is directly responsible for policy on compensation and conditions of employment for those excluded from the collective bargaining system. The compensation policies developed apply to federal employees in Canada as well as to those in foreign countries and embrace all forms of payment made in return for services rendered, including pay, leave and allowances.

*Staff Relations.*—Under the system of collective bargaining established by the Public Service Staff Relations Act, Treasury Board is the employer for all employees in the Public Service, with the exception of a number of “separate employers”, such as the National Research Council, the Defence Research Board and the National Film Board. The Treasury Board determines policies designed to promote good relations between the Government and its employees, negotiates collective agreements and co-ordinates consultations with the various certified bargaining agents, and administers the terms of the agreements which have not been delegated to departments. These policies, developed in relation to conditions of service, include the setting of appropriate standards for physical working conditions and occupational health and safety.

Much of the administration of agreements is delegated and in such cases the Board provides interpretations and advice to departments as required. The Treasury Board prepares and presents the employer's position on grievances that are referred to adjudication, and gives advice and assistance to departmental management at preceding stages in the grievance process. The Board presents the employer position concerning applications for certification by employee organizations and deals with the Public Service Staff Relations Board on the exclusion of employees from bargaining units.

*Pensions and Insurance.*—The Board develops policies, co-ordinates the administration and recommends periodic revision of pension programs for the Public Service, and negotiates reciprocal pension transfer agreements with outside employers. It also studies and proposes means of ensuring compatibility between Public Service employee benefits and medicare and other social security programs, and makes recommendations on the development and monitoring of Public Service income protection programs.

*Bilingualism.*—The Treasury Board Secretariat has over-all responsibility for the development of policy guidelines concerning implementation of the Government's bilingualism objectives within the Public Service, and for overseeing that activities by government departments and agencies in this area are consistent with stated policy. The Board also issues policy guidelines to deputy heads of departments to assist them in identifying bilingual positions within their organizations and to prescribe the linguistic requirements of such positions.

*Public Service Commission.*—The Public Service Employment Act, which became effective on Mar. 13, 1967, continues the status of the Public Service Commission as an independent agency responsible to Parliament. The Commission has the exclusive right and authority to make appointments to and from within the Public Service. The Commission is also empowered to operate staff development and training programs and to assist deputy heads in the carrying out of training and development.

It may establish boards to render decisions on appeals against appointments made from within the Public Service and against release or demotion for incompetence or incapacity, to make recommendations on the revocation of appointments improperly made under delegated authority and to render decisions on allegations of political partisanship.

The Commission may also approve leave of absence for public servants who wish to be candidates in federal or provincial elections and conduct investigations of allegations regarding improper political activities of public servants.

The Act authorizes the Commission to delegate to deputy heads any of its powers, except those relating to appeals and inquiries. The Commission has delegated its powers to make appointments in the Operational and Administrative Support Categories, with employing departments being required to use the Canada Manpower Centres as their recruitment agency in the case of appointment of people from outside the Public Service. Delegations of appointing authority in the Administrative and Foreign Service, Technical, and Scientific and Professional Categories have been made on a restricted basis. The Commission operates a monitoring program designed to ensure that appointments made under delegated authority comply with the law and with Commission policies.



*Staffing.*—The Public Service Commission performs its important role as guardian of the merit principle while ensuring the high quality of people within the Service, adequate representation of the two official language groups, a bilingual capability to the extent prescribed by the Government, equal employment and career development opportunities irrespective of sex, race, national origin, colour or religion, and encouragement of opportunities for disadvantaged people.

Every citizen has the opportunity of competing for positions in the service of his country. Competitive examinations are announced through the press and other news media and through posters displayed on public notice boards of the large post offices, offices of the Canada Manpower Centres, offices of the Public Service Commission and elsewhere.

The Commission's major task—staffing the Public Service according to merit—is done on an occupational basis. This is consistent with the classification system which divides the Service into six broad occupational categories which are further divided into groups of occupationally similar jobs. For each major occupation or group of occupations there is a program of recruitment, selection and placement. Comprehensive manpower planning, developed in co-operation with the Treasury Board and employing departments, has been introduced for several occupational groups. Continuous recruitment techniques, utilizing candidate inventories, have been developed and are utilized when appropriate.

Appointments are made from within the Service except where the Commission believes it is in the best interests of the Service to do otherwise. Appointments from within the Service are made either through a formal competition or from an employee inventory. "Data stream", the Commission's computerized manpower inventory, is the primary employee inventory for the Executive, Scientific and Professional, Technical and the Administrative and Foreign Service Categories.

*Language-training courses are provided by the Public Service Commission to meet the Federal Government's goal of creating a functionally bilingual public service. A sophisticated audio-visual teaching method is used, developed after intensive research, which is directed specifically to the needs of the Canadian public servant. The operation trains about 9,000 students a year and employs 400 language teachers.*



*Appeals.*—Under the Act, public servants who are candidates in a competition open to all or part of the Service may appeal the selections made as a result of the competition to the Public Service Commission. When a promotion is made without competition, those who would have been eligible to apply if a competition had been held may appeal. Public Servants may also appeal the decision of a Deputy Head to recommend release or demotion because of incompetence or incapacity.

*Training and Development.*—Consistent with the growing emphasis on managerial development and continuing education, the Public Service Commission offers interdepartmental courses in government administration, occupational training and management improvement. The Commission acts as the consultant and adviser to Deputy Heads on training matters and the training and development facilities of the Commission are available to employees to train them for specific occupations or for promotion within the administrative and managerial ranks.

*Bilingualism.*—In making appointments, the Commission ensures that employees are qualified in the knowledge and use of the English or French language or both, in order that departments may perform their functions effectively and that service can be provided to the public.

*Language Testing and Training.*—The Commission exercises specific responsibilities in the areas of language training, research, and the development of selection standards with regard to the linguistic requirements of positions and groups of positions within the federal Public Service. It must establish the degree of language knowledge or proficiency possessed by candidates for positions and establish the method of assessing the language knowledge of such candidates. The formulation of appropriate selection standards is to accord with the decisions of the individual Deputy Heads with respect to the linguistic requirements of positions and groups of positions.

### Statistics of Federal Government Employment\*

The current survey of Federal Government employment, introduced in 1952, covers all employees of the Government of Canada; employees in this sense exclude the Governor General and Lieutenant-Governors, Ministers of the Crown and Members of Parliament, judges, persons under contract and members of the Canadian Forces, but include Force members of the Royal Canadian Mounted Police. The survey is divided into two main categories: (1) departments and departmental corporations, and (2) agency corporations, proprietary corporations and other agencies and corporations. Table 1 combines the two groups and Tables 2 to 4 cover employees in the first category; only totals are available for employees in the second category, as given on p. 170.

**Departments and Departmental Corporations.**—The salaries of employees in this category are paid from the Consolidated Revenue Fund. In earlier issues of the Year Book, employment data were provided under the categories "salaried", "prevailing rate", "ships' officers and crews", and "casuals and others". Effective Apr. 1, 1969, a system of identifying employees by occupational categories was adopted by the Federal Government. Definitions of the occupational categories are as follows:—

- (1) *Executive Category* is composed of occupational groups engaged in the development of government policy, the direction of government programs and related functions in which there is a requirement for exceptional ability in utilizing resources or in initiating or modifying administrative functions.
- (2) *Scientific and Professional Category* is composed of occupational groups engaged in the application of a comprehensive body of knowledge acquired through university graduation in fields specified in group definitions, and of professional groups in which membership in Canada is generally controlled by legally established licensing bodies. Some fields included within this occupational category are auditing, biological sciences, dentistry, economics, sociology and statistics, engineering and land survey.

\* Prepared in the Governments Division, Financial Statistics Branch, Statistics Canada.

- (3) *Administrative and Foreign Service Category* is composed of occupational groups engaged in the planning, execution, conduct and control of programs serving the public interest, the political and economic relations between Canada and other countries, and the requirements of internal management in the Public Service of Canada.
- (4) *Technical Category* is composed of occupational groups engaged in the conduct of analytical, experimental and investigative duties in the natural, physical and social sciences, in the preparation, inspection and measurement of biological, chemical and physical substances and materials, in the design, construction, inspection, operation and maintenance of complex equipment, systems and processes, and in the performance of similar technical duties.
- (5) *Administrative Support Category* is composed of occupational groups engaged in the preparation, transcribing, transmitting, systematizing and maintenance of records, reports and communications of manual processes, or by operating various machines and equipment, as in the direct application of rules and regulations.
- (6) *Operational Category* is composed of occupational groups engaged in the performance of a craft or of unskilled work in the fabrication, maintenance and repair activities, in the operation of machines, equipment and vehicles, and in the provision of postal, protective, correctional, personal or domestic services.
- (7) *Casual and Others Category* is composed of all employees in departments and departmental corporations of the Government of Canada who are not defined as in executive, scientific and professional, administrative, administrative and foreign service, technical, administrative support or operational categories.

Because Statistics Canada is precluded from publishing data that might permit the identification of individuals, it has been necessary to combine the data for the executive category with those for the scientific and professional category and also to combine the data relating to employment outside Canada with those for the Yukon and Northwest Territories.

**1.—Total Federal Government Employees, by Province, as at Dec. 31, 1970,  
and Payrolls for the Quarter Ended Dec. 31, 1970**

Item and Province or Territory	Departments and Departmental Corporations	Agency Corporations	Proprietary Corporations	Other Agencies and Corporations	Total
	No.	No.	No.	No.	No.
<b>Employees—</b>					
Newfoundland and Labrador.....	4,459	9	5,013	7	9,488
Prince Edward Island.....	1,308	—	786	—	2,094
Nova Scotia.....	14,762	284	8,784	62	23,892
New Brunswick.....	7,757	108	6,552	36	14,453
Quebec.....	40,853	2,056	31,409	380	74,698
Ontario.....	106,475	6,066	33,240	1,490	147,271
Manitoba.....	11,624	342	12,059	656	24,681
Saskatchewan.....	8,738	2	3,415	111	12,266
Alberta.....	14,988	54	6,461	190	21,693
British Columbia.....	25,514	228	6,524	227	32,493
Yukon and Northwest Territories and abroad <sup>1</sup> .....	6,528	297	9,123	9	15,957
<b>Totals, Employees.....</b>	<b>243,006</b>	<b>9,446</b>	<b>123,366</b>	<b>3,168</b>	<b>378,986</b>
	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Totals, Payrolls.....</b>	<b>466,943</b>	<b>21,714</b>	<b>276,169</b>	<b>6,447</b>	<b>771,273</b>

<sup>1</sup> Excludes a number of Canadian National Railways employees not separable from other provincial totals.



## 2.—Employees in Departments and Departmental Corporations of the Federal Government, by Province and Occupational Category, as at Dec. 31, 1970

Province or Territory	Executive, Scientific and Professional	Administrative and Foreign Service	Technical	Administrative Support	Operational	Casuals and Others	Total
	No.	No.	No.	No.	No.	No.	No.
Newfoundland and Labrador.	158	282	764	691	1,702	862	4,459
Prince Edward Island.....	62	80	160	170	660	176	1,308
Nova Scotia.....	618	789	1,358	2,519	7,059	2,419	14,762
New Brunswick.....	400	548	837	1,606	3,284	1,082	7,757
Quebec.....	2,086	3,617	2,349	7,601	19,192	6,008	40,833
Ontario.....	8,695	14,577	7,264	32,178	28,593	15,168	106,475
Manitoba.....	1,001	913	1,072	2,159	4,804	1,675	11,624
Saskatchewan.....	647	743	547	1,228	3,502	2,071	8,738
Alberta.....	1,205	1,171	1,379	2,376	6,417	2,440	14,988
British Columbia.....	1,655	1,921	2,170	4,249	10,122	5,397	25,514
Yukon and Northwest Territories and abroad.....	340	860	378	745	1,149	3,056	6,528
<b>Canada.....</b>	<b>16,867</b>	<b>25,501</b>	<b>18,278</b>	<b>55,522</b>	<b>86,484</b>	<b>40,354</b>	<b>243,006</b>

## 3.—Federal Employees in Metropolitan Areas with Totals for Non-metropolitan Areas, by Sex, as at Sept. 30, 1970, and Payrolls for September 1970

Area	Persons Employed as at Sept. 30, 1970				Regular Payrolls, September 1970	
	Male	Female	Total	P.C. of Total	Total	P.C. of Total
	No.	No.	No.		\$'000	
<b>Metropolitan Areas—</b>						
Ottawa, Ont.—Hull, Que.....	35,444	22,147	57,591	24.3	38,176	28.6
Montreal, Que.....	15,869	5,501	21,370	9.0	10,865	8.1
Toronto, Ont.....	12,093	4,547	16,640	7.0	8,813	6.6
Vancouver, B.C.....	6,997	3,012	10,009	4.2	5,541	4.1
Halifax, N.S.....	7,665	1,930	9,595	4.1	4,891	3.7
Winnipeg, Man.....	4,623	1,941	6,564	2.8	3,558	2.7
Victoria, B.C.....	4,591	1,221	5,812	2.5	3,205	2.4
Edmonton, Alta.....	3,597	1,808	5,405	2.3	2,968	2.2
Quebec, Que.....	3,312	837	4,149	1.7	2,159	1.6
London, Ont.....	2,503	1,286	3,789	1.6	1,893	1.4
Calgary, Alta.....	2,260	1,001	3,261	1.4	1,723	1.3
Hamilton, Ont.....	1,455	533	1,988	0.8	1,061	0.8
Regina, Sask.....	1,314	549	1,863	0.8	1,001	0.8
St. John's, Nfld.....	1,562	288	1,850	0.8	982	0.7
Saint John, N.B.....	1,242	489	1,731	0.7	876	0.7
Saskatoon, Sask.....	1,098	335	1,433	0.6	877	0.7
Windsor, Ont.....	985	299	1,284	0.5	691	0.5
Kitchener-Waterloo, Ont.....	683	218	901	0.4	495	0.4
Sudbury, Ont.....	185	107	292	0.1	139	0.1
<b>Non-metropolitan Areas—</b>						
In Canada.....	61,502	16,402	77,904	32.8	41,361	31.0
Outside Canada.....	2,166	1,560	3,726	1.6	2,110	1.6
<b>Totals.....</b>	<b>171,146</b>	<b>66,011</b>	<b>237,157</b>	<b>100.0</b>	<b>133,375</b>	<b>100.0</b>
	p.c.	p.c.	p.c.		p.c.	
Proportion in—						
Metropolitan areas.....	62.8	72.8	65.6	...	67.4	...
Non-metropolitan areas.....	37.2	27.2	34.4	...	32.6	...
In Canada.....	85.9	84.8	82.8	...	81.0	...
Outside Canada.....	1.3	2.4	1.6	...	1.6	...

# 4.—Departments and Departmental Corporations classified by Function, Persons Employed as at Dec. 31, 1970, and Regular Payrolls for the Quarter Ended Dec. 31, 1970

NOTE.—Excludes agency and proprietary corporations and other agencies and corporations, figures for which are given on the following page.

Function	Executive, Scientific and Professional			Administrative and Foreign Service			Technical			Administrative Support			Operational			Casuals and Others			Totals <sup>1</sup>		
	Em- ployees	Regular Payrolls	No.	Em- ployees	Regular Payrolls	No.	Em- ployees	Regular Payrolls	No.	Em- ployees	Regular Payrolls	No.	Em- ployees	Regular Payrolls	No.	Em- ployees	Regular Payrolls	No.	Em- ployees	Regular Payrolls	No.
General government services . . . . .	3,873	14,765,404	9,160	26,622,183	1,050	2,662,058	18,902	30,392,436	6,590	9,964,516	5,334	7,184,232	44,909	91,590,829							
Protection of persons and prop- erty . . . . .	734	3,128,179	804	2,465,128	505	1,125,654	3,107	4,436,896	3,933	7,661,623	11,578	25,104,410	20,661	43,921,890							
Transportation and communi- cations . . . . .	925	3,397,976	1,273	4,145,145	6,411	16,510,257	3,052	4,580,603	6,086	10,028,079	1,529	2,229,343	19,276	40,891,403							
Health . . . . .	1,732	5,478,445	246	807,962	502	1,037,946	1,090	1,602,047	1,159	1,705,652	715	757,108	5,444	11,389,160							
Social welfare . . . . .	572	1,897,811	7,319	20,193,913	136	327,958	9,310	14,318,382	1,251	1,635,508	2,839	2,535,702	21,427	40,909,274							
Recreational and cultural ser- vices . . . . .	295	899,441	210	598,195	132	295,358	589	853,009	1,417	1,922,196	1,634	2,714,121	4,277	7,282,320							
Education—Indian and Eskimo schools . . . . .	1,431	3,199,329	13	38,759	121	48,890	14	19,487	20	31,535	35	22,265	1,634	3,360,265							
Natural resources and primary industries . . . . .	4,042	15,623,259	911	2,921,968	5,746	12,241,442	3,129	4,706,313	3,743	6,112,549	1,831	2,632,937	19,402	44,238,468							
Trade and industrial develop- ment . . . . .	98	489,067	1,033	4,267,102	26	65,914	865	1,382,900	22	25,158	641	784,252	2,685	7,014,393							
Defence services . . . . .	638	2,330,331	1,077	3,368,078	2,100	5,023,804	8,807	12,437,795	19,124	30,212,947	5,938	11,707,101	37,684	65,080,056							
Veterans' pensions and other benefits . . . . .	1,734	4,210,799	742	2,077,679	281	550,267	2,607	4,072,954	4,988	7,006,602	975	993,745	11,327	18,912,046							
International co-operation and assistance . . . . .	25	127,119	190	602,569	5	11,789	275	396,473	4	5,035	55	70,953	554	1,213,938							
Other . . . . .	768	2,896,495	2,523	8,244,186	1,263	2,758,717	3,775	5,918,836	38,147	58,583,624	7,250	12,737,083	53,726	91,138,941							
<b>Totals . . . . .</b>	<b>16,867</b>	<b>58,443,655</b>	<b>25,591</b>	<b>76,352,867</b>	<b>18,278</b>	<b>42,660,054</b>	<b>55,522</b>	<b>85,118,131</b>	<b>86,484</b>	<b>134,895,024</b>	<b>40,354</b>	<b>69,473,252</b>	<b>243,006</b>	<b>466,942,983</b>							

<sup>1</sup> Excludes payments to the Governor General and Lieutenant-Governors amounting to \$87,666; judges \$2,700,249; and Ministers of the Crown (including the Prime Minister, Speakers of the Senate and the House of Commons, Deputy Speaker of the House of Commons and Parliamentary Secretaries) \$128,997.

Table 4 presents statistics for departments and departmental corporations on the basis of a classification by function. The purpose of such classification is to provide a means of studying the operation of government without the complication that results from differences in administrative establishment. This analysis is useful in three ways. First, it permits a detailed study of employment by the Government of Canada according to the main purposes or functions and, since these functions are not subject to periodic changes that alter the administrative structure of the Government, it is possible to develop a statistical series which, with minor exceptions, is consistent over an extended period of time. Secondly, since differences in administrative establishment are eliminated, it is possible to make meaningful comparisons between Federal Government expenditures on employment and similar expenditures by other levels of government. Thirdly, an analysis of the relationship between expenditures on employment and total expenditures may be made with regard to each function.

To ensure that individuals are not identifiable, it has been necessary to eliminate from this table the sub-functions shown in previous editions of the Year Book. Quarterly data on both the functional and departmental bases are available in the Statistics Canada publication *Federal Government Employment* (Cat. No. 72-004).

**Agency Corporations, Proprietary Corporations and Other Agencies and Corporations.**—The following organizations owned by the Federal Government as at Dec. 31, 1970 are included under this heading. Their employees at that date numbered 135,980 and their payrolls for the quarter ended Dec. 31, 1970 amounted to \$304,330,000. A provincial distribution of employees and a summary of the total payroll in each of the three groups are given in Table 1.

#### Agency Corporations

Atomic Energy of Canada Limited	Defence Construction (1951) Limited
Canadian Arsenals Limited	National Battlefields Commission
Canadian Dairy Commission	National Capital Commission
Canadian Film Development Corporation	National Harbours Board
Canadian Livestock Feed Board	Northern Canada Power Commission
Company of Young Canadians	Royal Canadian Mint
Crown Assets Disposal Corporation	

#### Proprietary Corporations

Air Canada	Eldorado Nuclear Limited
Canada Deposit Insurance Corporation	Export Development Corporation
Canadian Broadcasting Corporation	Farm Credit Corporation
Canadian National Railways	Freshwater Fish Marketing Corporation
Canadian Overseas Telecommunications Corporation	Northern Transportation Company Limited
Cape Breton Development Corporation	Polymer Corporation Limited
Central Mortgage and Housing Corporation	St. Lawrence Seaway Authority
Eldorado Aviation Limited	Seaway International Bridge Corporation Limited

#### Other Agencies and Corporations

Bank of Canada	Industrial Development Bank
Canada Council	Office of the Custodian of Enemy Property
Canadian Government Elevators	National Arts Centre
Canadian Wheat Board	



### Provincial Government Employment

Table 5 shows the numbers of persons employed by the various provincial and territorial governments, with the exception of British Columbia, at the end of December 1970 and gross payrolls (including retroactive pay, salary adjustments and overtime) for the year 1970. The only data available for British Columbia are for employees of institutions of higher education; these are included in the body of the table but not in the totals, all of which are, of course, exclusive of that province.

Of the total 1970 provincial and territorial government payrolls of \$2,378,989,000 (excluding British Columbia), departmental services employees received 59.9 p.c., employees of institutions of higher education 11.0 p.c., employees of provincial government enterprises 27.9 p.c. and employees of workmen's compensation boards 1.2 p.c.

#### 5.—Provincial Government Employment as at Dec. 31, 1970, and Payrolls for the Year 1970

Province or Territory and Item	Departmental Services	Provincial Institutions of Higher Education	Provincial Government Enterprises	Workmen's Compensa- tion Boards	Total
Newfoundland—					
Employees..... No.	10,119	1,612	1,042	67	12,840
Gross payrolls..... \$ '000	52,135	10,927	5,814	370	69,246
Prince Edward Island—					
Employees..... No.	2,962	—	81	14	3,057
Gross payrolls..... \$ '000	13,552	—	333	85	13,970
Nova Scotia—					
Employees..... No.	16,592	—	4,979	87	21,658
Gross payrolls..... \$ '000	71,503	—	34,035	608	106,146
New Brunswick—					
Employees..... No.	9,649	1,301	2,245	70	13,265
Gross payrolls..... \$ '000	51,984	9,875	14,938	467	77,064
Quebec—					
Employees..... No.	55,727	—	18,621	1,403	75,751
Gross payrolls..... \$ '000	354,244	—	154,038	8,343	516,625
Ontario—					
Employees..... No.	75,770	15,876	30,831	1,551	124,028
Gross payrolls..... \$ '000	552,790	110,006	289,137	12,331	964,264
Manitoba—					
Employees..... No.	11,516	5,880	8,169	133	25,698
Gross payrolls..... \$ '000	78,672	32,327	57,087	831	168,917
Saskatchewan—					
Employees..... No.	11,402	5,403	6,530	134	23,469
Gross payrolls..... \$ '000	75,845	33,411	45,631	925	155,812
Alberta—					
Employees..... No.	24,178	11,033	9,539	517	45,267
Gross payrolls..... \$ '000	152,354	66,003	63,055	3,621	285,033
British Columbia—					
Employees..... No.	..	8,500 <sup>1</sup>	..	..	8,500 <sup>1</sup>
Gross payrolls..... \$ '000	..	51,726 <sup>1</sup>	..	..	51,726 <sup>1</sup>
Yukon and Northwest Territories—					
Employees..... No.	3,678	—	73	—	3,751
Gross payrolls..... \$ '000	21,515	—	397	—	21,912
<b>All Provinces and Territories except British Columbia—</b>					
Employees..... No.	221,593	41,105	82,110	3,976	348,784
Gross payrolls..... \$ '000	1,424,594	262,349	664,465	27,581	2,378,989

<sup>1</sup> Omitted from totals; see preceding text.

## PART V.—CANADA'S EXTERNAL RELATIONS\*

### Section 1.—Canada's International Status

The growth of Canada's international status is reflected in the development of the Department of External Affairs. From Confederation until 1914, Canada's position in the British Empire was essentially that of a self-governing colony, whose external relations were directed and controlled by the Imperial Government in Great Britain. Canada's first efforts concerning its own external relations, in the early 1900s, merely took the form of creating improved administrative machinery at home. In 1909, Parliament authorized the establishment of a "Department of External Affairs" placing it under the Secretary of State, with an Under-Secretary of State for External Affairs to rank as the permanent deputy head of the Department. The title of the Department indicated that it was to deal with Canada's relations with other governments within the British Empire as well as with foreign powers but its establishment brought no constitutional change. In 1912, the Department was placed directly under the Prime Minister who held the additional portfolio of Secretary of State for External Affairs and this situation obtained until 1946 when the first separate Secretary of State for External Affairs was appointed.

The Department began with a modest staff consisting of the Under-Secretary and six clerks. In 1912 an Assistant Under-Secretary was added, and in 1913 a Legal Adviser. Before the establishment of the Department, a High Commissioner had been appointed to represent Canada in London (from 1880) and an Agent-General in France (from 1882), and Canada, in the closing years of the nineteenth century, was also represented abroad by trade commissioners and immigration officials. However, none of these officials had diplomatic status. Negotiations with foreign countries were conducted through the British Foreign Office and dealings with other parts of the Empire through the Colonial Office, with Canadian representatives frequently included in negotiations. Canadian interests abroad were handled by British diplomatic and consular authorities and all Canadian communications to other governments were made through the Governor General.

The gradual recognition of Canadian autonomy in international affairs and the growth of Canadian responsibilities abroad made expansion of services and representation inevitable. After 1920, it became increasingly apparent that Canada's interests could no longer be conveniently handled by the British diplomatic and consular authorities and the Department began to develop into an agency for the direct administration of Canada's external affairs. In 1921, the Office of the High Commissioner in London was placed under its direct control. In 1925, a Canadian Advisory Officer was appointed in Geneva to represent Canada at various conferences and League of Nations Assemblies and to keep the Canadian Government informed of the activities of the League and of the International Labour Office. In 1927, a Canadian Minister was appointed to Washington.

An advance of the first importance in the Department's development came as a result of an agreement reached at the Imperial Conference of 1926 by which the Governor General ceased to represent the British Government and became solely the personal representative of the Sovereign. This brought about two changes: as the British Government was now without a representative in Canada, it appointed, in 1928, a High Commissioner to represent it at Ottawa; and after July 1, 1927, correspondence from the Dominions Office in London and from foreign governments was directed to the Secretary of State for External Affairs instead of to the Governor General.

In 1928, the former Agent-General in Paris was appointed Minister to France and, in 1929, a legation was opened in Tokyo. At about the same time, the United States, France and Japan opened legations in Ottawa. The expansion of the service was then interrupted by the depression of the 1930s and the next steps in the exchange of diplomatic representatives with other countries were taken when Belgium sent a Minister to Ottawa in 1937 and Canada, in 1939, established legations in Belgium and the Netherlands.

\* Prepared (November 1971) by the Department of External Affairs, Ottawa.

With the outbreak of the Second World War, it became imperative that Canada have closer and more direct contact with other governments of the Commonwealth, with the Allied governments and with certain other foreign governments. The day after Canada's separate declaration of war on Sept. 10, 1939, it was announced that the Canadian Government would send High Commissioners to Australia, New Zealand, South Africa and Ireland, and these governments reciprocated. The appointment in 1941 of a High Commissioner to Newfoundland recognized the importance of that country to the defence of Canada. In 1942, by reciprocal agreement, Canada appointed Ministers to the Union of Soviet Socialist Republics and China. During the War, a single Canadian Minister was accredited to a number of Allied governments then functioning in London or Cairo—those of Belgium, the Netherlands, Czechoslovakia, Greece, Norway, Poland and Yugoslavia—and Canada received Ministers from each of these governments. After the liberation of France, this Minister, following a period in Algiers as representative to the French Committee of National Liberation, moved to Paris with the rank of Ambassador.

Another wartime development was the establishment of diplomatic relations with Latin America. In 1941, Canadian legations were opened in Brazil and the Argentine Republic (the Minister to the latter being also accredited in 1942 to Chile) and these countries sent their first Ministers to Ottawa. Diplomatic representatives were sent to Mexico and Peru in 1944 and to Cuba in 1945. Canada now has formal diplomatic relations with all 20 countries in Latin America and, because of developing ties with that area, a separate political division devoted to Latin America was set up in the Department in 1960.

Canada's external service continued to expand following the War. Embassies were opened in a number of countries and, after 1947, High Commissioners were accredited to India, Pakistan and Ceylon and subsequently to other countries which became Commonwealth members upon independence. In the 1960s, Canada also developed its diplomatic relations in the French-speaking world, particularly with the newly independent francophone States of Africa. Thus, relying on a system of multiple accreditation, Canada now has ambassadorial links with all of the 22 francophone African countries. The embassies are in Tunis, Algiers, Dakar, Abidjan, Yaounde and Kinshasa. The decision to establish diplomatic relations with the Holy See was taken in 1969. On Oct. 13, 1970, Canada established diplomatic relations with the People's Republic of China.

Membership in the United Nations has increased Canada's responsibilities outside its own borders and Canada has been represented on various organs of the UN since its formation in San Francisco in 1945. A Permanent Canadian Delegation was established in New York in 1948 and a year later a Canadian office was opened in Geneva, the European headquarters of the organization. These offices, now called Permanent Missions, have since been expanded. Canada was one of the founding members of the North Atlantic Treaty Organization in 1949 and has been active in the Organization throughout the years of its existence. In 1952, on the establishment of a NATO Permanent Council, a Canadian Permanent Delegation was set up in Paris (since moved to Brussels) to represent Canada's NATO interest. There is also in Paris a Canadian Permanent Delegation to the Organization for Economic Co-operation and Development. In addition to representing Canada on these permanent international bodies and their various committees, officials of the Department of External Affairs are members of Canadian delegations at many international conferences.

Today, Canada conducts diplomatic, consular and/or trade representation in 121 independent countries, details of which are contained in Section 2 which follows. Canada's main international activities from January 1970 to the end of March 1971 are reported in Section 3 of this Chapter. A brief review of the present functions and organization of the Department of External Affairs is given on pp. 142-143; a broader coverage may be found in the monthly bulletin *External Affairs* which is soon to be known as *International Perspectives* (Information Canada, Ottawa, \$2 per year) and in the Annual Report of the Department (Information Canada, Ottawa).



## Section 2.—Diplomatic and/or Consular Representation as at Aug. 17, 1971

### 1.—Canadian Representation Abroad

NOTE.—Changes in this listing subsequent to Aug. 17, 1971 and names of current representatives are given in *Canadian Representatives Abroad and Diplomatic Corps and Representatives of Other Countries in Canada*, published occasionally and obtainable from Information Canada, Ottawa.

Country and Year Representation Established	Present Status of Representative	Address
Afghanistan.....1968	*Ambassador	c/o Office of the High Commissioner for Canada, Hotel Shahrazad, Islamabad, West Pakistan. Postal address: P.O. Box 1042, GPO
Algeria.....1965	Ambassador	c/o Canadian Embassy, P.O. Box 225, Grand Poste, Algiers
Argentina.....1941	Ambassador	Brunetta Bldg., Suipacha and Santa Fé. Postal address: Casilla de Correo 1598, Buenos Aires
Australia.....1939	High Commissioner	Commonwealth Ave., Canberra A.C.T. 2600
Austria.....1952	Ambassador	Dr. Karl Lueger-Ring 10, 1010 Vienna
Bahamas.....	*High Commissioner	c/o P.O. Box 1500, Kingston 10, Jamaica
Barbados.....1966	*High Commissioner	c/o Office of the High Commissioner for Canada, 72 South Quay, Port-of-Spain, Trinidad. Postal address: P.O. Box 1246
Belgium.....1939	Ambassador	35, rue de la Science, 1040 Brussels
Bolivia.....1961	*Ambassador	c/o Canadian Embassy, Edificio El Pacifico-Washington, 7° Piso, Plaza Washington, Lima, Peru. Postal address: Casilla 1212
Botswana.....1969	*High Commissioner	c/o Canadian Embassy, NBSA Centre, Church and Beatrix Sts. Postal address: P.O. Box 2181, Pretoria, South Africa
Brazil.....1941	Ambassador	Edificio Metropole, Av. Presidente Wilson 165. Postal address: Caixa Postal 2164-ZC-00, Rio de Janeiro
São Paulo.....	Consul	Edificio Scarpa, Av. Paulista 1765-9° andar. Postal address: Caixa Postal 6034
Britain.....1880	High Commissioner	Canada House, Trafalgar Sq., S.W.1, London
British Honduras.....	*High Commissioner	c/o P.O. Box 1500, Kingston 10, Jamaica
Bulgaria.....1967	*Ambassador	c/o Canadian Embassy, Proleterskih Brigada 69, Belgrade, Yugoslavia
Burma.....1958	*Ambassador	c/o Office of the High Commissioner for Canada, A.I.A. Building, Kuala Lumpur, Malaysia. Postal address: P.O. Box 990
Burundi.....1968	*Ambassador	c/o Canadian Embassy, Edifice Shell, coin av. Wangata et boul. du 30-juin. Postal address: P.O. Box 8341, Kinshasa, Democratic Republic of the Congo
Cameroon.....1962	Ambassador	Immeuble Soppo Priso, rue Conrad Adenauer. Postal address: P.O. Box 572, Yaounde
Central African Republic.....1962	*Ambassador	c/o Canadian Embassy, Immeuble Soppo Priso, rue Conrad Adenauer, Yaounde, Cameroon. Postal address: P.O. Box 572
Ceylon.....1953	High Commissioner	6 Gregory's Road, Cinnamon Gardens. Postal address: P.O. Box 1006, Colombo
Chad.....1962	*Ambassador	c/o Canadian Embassy, Immeuble Soppo Priso, rue Conrad Adenauer, Yaounde, Cameroon. Postal address: P.O. Box 572
Chile.....1942	Ambassador	Ahumada 11. Postal address: Casilla 427, Santiago
China, People's Republic of.....1971	Ambassador	San Li Tun No. 16, Peking, China
Colombia.....1953	Ambassador	Calle 58, No. 10-42. Postal address: (air mail) Apartado Aereo 22031; (surface mail) Apartado 696, Bogota
Congo, People's Republic of.....1962	*Ambassador	c/o Canadian Embassy, Edifice Shell, coin av. Wangata et boul. du 30-juin, Kinshasa, Democratic Republic of the Congo. Postal address: P.O. Box 8341
Congo, Democratic Republic of.....1962	Ambassador	Edifice Shell, coin av. Wangata et boul. du 30-juin, Kinshasa. Postal address: P.O. Box 8341

\* Dual accreditation; representative not resident in the country.

## 1.—Canadian Representation Abroad—continued

Country and Year Representation Established	Present Status of Representative	Address
Costa Rica.....1961	Ambassador.....	Edificio Amalia Avenida 1 y Calle 7. Postal address: Apartado Postal 10303, San José
Cuba.....1945	Ambassador.....	Calle 30 No. 518, Esquina a7a, Miramar. Postal address: Gaveta 6125, Havana
Cyprus.....1961	*High Commissioner.....	c/o Canadian Embassy, 84 Hahashmonaim St., Tel Aviv, Israel
Czechoslovakia.....1943	Ambassador.....	Mickiewiczova 6, Prague 6
Dahomey.....1962	*Ambassador.....	c/o Office of the High Commissioner for Canada, E 115/3 Independence Ave., Accra, Ghana
Denmark.....1946	Ambassador.....	Prinsesse Maries Allé 2, 1908 Copenhagen
Dominican Republic.....1954	*Ambassador.....	c/o Canadian Embassy, Avenida La Estancia No. 10, 16° Piso. Ciudad Comercial Tamanaco. Postal address: Apartado del Este No. 62302, Caracas, Venezuela
Ecuador.....1961	*Ambassador.....	c/o Canadian Embassy, Calle 58, No. 10-42. Postal address: (air mail) Apartado Aereo 22031; (surface mail) Apartado 696, Bogota, Colombia
El Salvador.....1962	*Ambassador.....	c/o Canadian Embassy, Edificio Amalia, Avenida 1 y Calle 7, San José, Costa Rica
Ethiopia.....1966	Ambassador.....	African Solidarity Insurance Building, Haile Selassie 1 Square. Postal address: P.O. Box 1130, Addis Ababa
European Communities (The European Economic Community, The European Atomic Energy Community, The European Coal and Steel Community).....1960	Head of Mission.....	35, rue de la Science, 1040 Brussels, Belgium
Fiji.....	*High Commissioner.....	c/o Office of the High Commissioner for Canada, Commonwealth Ave., Canberra A.C.T. 2600, Australia
Finland.....1949	Ambassador.....	Pohjois Esplanadikatu 25B, Helsinki
France.....1928	Ambassador.....	35, avenue Montaigne, Paris VIII*
Bordeaux.....	Consul General.....	15 bis, allée de Chartres, 33-Bordeaux. Postal address: Canadian Consulate General, Bordeaux
Marseille.....	Consul General.....	Canadian Consulate General, 24 av. du Prado, Marseille (6*), Bouches-du-Rhône
Gabon.....1962	*Ambassador.....	c/o Canadian Embassy, Immeuble Soppo Priso, rue Conrad Adenauer, Yaounde, Cameroon. Postal address: P.O. Box 572
Gambia.....1966	*High Commissioner.....	c/o Canadian Embassy, 45, av. de la République, Dakar, Senegal. Postal address: B.P. 3373
Germany.....1950	Ambassador.....	Friedrich-Wilhelm Strasse 18, Bonn 53
Duesseldorf.....	Consul General.....	4 Duesseldorf 1, Koenigsallee 82, Duesseldorf
Hamburg.....	Consul General.....	Esplanade 41-47, 2000 Hamburg 36
Berlin.....	*Head of Mission.....	c/o Canadian Embassy, Friedrich-Wilhelm Strasse 18, Bonn 53
Ghana.....1957	High Commissioner.....	E 115/3 Independence Avenue. Postal address: P.O. Box 1639, Accra
Greece.....1943	Ambassador.....	31, Avenue Vassilissis Sofias, Athens 138
Guatemala.....1961	*Ambassador.....	Melchor Ocampo 463-7. Apartado 5364, Mexico 5, D.F.
Guinea.....1962	*Ambassador.....	c/o Canadian Embassy, 45, av. de la République, Dakar, Senegal. Postal address: B.P. 3373
Guyana.....1964	High Commissioner.....	High and Church Streets. Postal address: P.O. Box 660, Georgetown
Haiti.....1954	*Ambassador.....	Calle 30 No. 518, Esquina a7a, Miramar. Postal address: Gaveta 6125, Havana
Holy See.....1970	Ambassador.....	Canadian Embassy to the Holy See, 7 Largo Messico, Rome 00198, Italy
Honduras.....1961	*Ambassador.....	c/o Canadian Embassy, Edificio Amalia, Avenida 1 y Calle 7. Postal address: Apartado Postal 10303, San José, Costa Rica
Hong Kong.....1946	Commissioner.....	P & O Bldg., 21-23 Des Voeux Road Central. Postal address: P.O. Box 126, Victoria

\* Dual accreditation; representative not resident in the country.

## 1.—Canadian Representation Abroad—continued

Country and Year Representation Established	Present Status of Representative	Address
Hungary.....1965	*Ambassador.....	c/o Canadian Embassy, Mickiewiczova 6, Prague 6, Czechoslovakia
Iceland.....1949	*Ambassador.....	c/o Canadian Embassy, Oscars Gate 20, Oslo 3, Norway
India.....1947	High Commissioner.....	4 Aurangzeb Road. Postal address: P.O. Box 114, New Delhi 11
Indonesia.....1953	Ambassador.....	Djalan Budi Kemuliaan No. 6, Djakarta
Iran.....1958	Ambassador.....	Bezrouke House, corner of Takhte Djam- chid Avenue and Forsat Street. Postal address: P.O. Box 1610, Tehran
Iraq.....1961	*Ambassador.....	c/o Canadian Embassy, P.O. Box 1610, Tehran, Iran
Ireland.....1940	Ambassador.....	10 Clyde Road, Ballsbridge, Dublin 4
Israel.....1953	Ambassador.....	84 Hahashmonaim Street, Tel Aviv
Italy.....1947	Ambassador.....	Via G. B. de Rossi 27, 00161 Rome
Milan.....	Consul General.....	Postal address: Via Vittorio Pisani 19, 20124 Milan
Ivory Coast.....1962	Ambassador.....	Canadian Embassy, Botreau-Roussel 9, Abidjan. Postal address: B.P. 21194
Jamaica.....1962	High Commissioner.....	Dominion Life Bldg., Tobago Road, corner Trafalgar Rd. and Knutsford Blvd. Postal address: P.O. Box 1500, Kingston 10
Japan.....1929	Ambassador.....	Embassy of Canada, Akasaka Post Office, Tokyo
Jordan.....1965	*Ambassador.....	c/o Canadian Embassy, Immeuble Alpha, rue Clemenceau, Beirut, Lebanon. Postal address: C.P. 2300
Kenya.....1965	High Commissioner.....	Industrial Promotion Services Bldg., Kima- thi Street. Postal address: P.O. Box 30481, Nairobi
Korea, Republic of.....1964	*Ambassador.....	c/o Embassy of Canada, Akasaka Post Office, Tokyo, Japan
Kuwait.....1965	*Ambassador.....	c/o Canadian Embassy, Bezrouke House, corner of Takhte Djamchid Ave. and For- sat St., Tehran, Iran. Postal address: P.O. Box 1610
Laos.....1954	*Commissioner.....	c/o Delegation of Canada to the Interna- tional Commission for Supervision and Control, 76, route Sisangvone, P.O. Box 389, Vientiane
Lebanon.....1954	Ambassador.....	Immeuble Alpha, rue Clemenceau. Postal address: C.P. 2300, Beirut
Lesotho.....1968	*High Commissioner.....	c/o Canadian Embassy, NBSA Centre, Church and Beatrix Sts., Pretoria, South Africa. Postal address: P.O. Box 2181
Libya.....1968	*Ambassador.....	c/o Canadian Embassy, 3 rue Didon, Notre- Dame de Tunis, Tunisia. Postal address: P.O. Box 606
Luxembourg.....1945	*Ambassador.....	c/o Canadian Embassy, 35, rue de la Science, 1040 Brussels, Belgium
Madagascar.....1967	*Ambassador.....	c/o Canadian Embassy, African Solidarity Insurance Bldg., Haile Selassie 1 Square, Addis Ababa, Ethiopia. Postal address: P.O. Box 1130
Malaysia.....1958	High Commissioner.....	American International Assurance Bldg., Ampang Road. Postal address: P.O. Box 990, Kuala Lumpur
Mali.....1970	*Ambassador.....	c/o Canadian Embassy, 45, av. de la Ré- publique. Postal address: P.O. Box 3373, Dakar, Senegal
Malta.....1964	*High Commissioner.....	c/o Canadian Embassy, Via G. B. de Rossi 27, 00161 Rome, Italy
Mauritania.....1968	*Ambassador.....	c/o Canadian Embassy, 45, av. de la Ré- publique. Postal address: P.O. Box 3373, Dakar, Senegal
Mauritius.....1970	*High Commissioner.....	c/o Office of the High Commissioner for Canada, Gailey and Roberts Bldg., Inde- pendence Ave. Postal address: P.O. Box 1022, Dar-es-Salaam, Tanzania
Mexico.....1944	Ambassador.....	Melchor Gampo 463-7, Mexico 5, D.F.
Monaco.....1967	*Consul General.....	c/o Canadian Consulate General, 24, av. du Prado, Marseille (6 <sup>e</sup> ), Bouches-du-Rhône, France

\* Dual accreditation; representative not resident in the country.



## 1.—Canadian Representation Abroad—continued

Country and Year Representation Established	Present Status of Representative	Address
Morocco.....1962	*Ambassador.....	c/o Canadian Embassy, Edificio España, Plaza de España 2, Madrid, Spain. Postal address: Apartado 587
Nepal.....1965	*Ambassador.....	c/o Canadian High Commissioner's Office, 4 Aurangzeb Road, New Delhi, India. Postal address: P.O. Box 114
Netherlands.....1939	Ambassador.....	5 and 7 Sophialaan, The Hague
New Zealand.....1940	High Commissioner.....	I.C.I. Building, Molesworth Street, N.I. Postal address: P.O. Box 12-049, Wellington North
Nicaragua.....1961	*Ambassador.....	c/o Canadian Embassy, Edificio Amalia, Avenida 1 y Calle 7. Postal address: Apartado Postal 10303, San José, Costa Rica
Niger.....1962	*Ambassador.....	c/o Canadian Embassy, Botreau-Roussel 9, Abidjan, Ivory Coast. Postal address: B.P. 21194
Nigeria.....1960	High Commissioner.....	Niger House, Tinubu Street. Postal address: P.O. Box 851, Lagos
North Atlantic Council (Delegation of Canada).....1952	Permanent Representative and Ambassador.....	1110 Brussels, Belgium
Norway.....1943	Ambassador.....	Oscars Gate 20, Oslo 3
Organization for Economic Co-operation and Development (The Permanent Delegation of Canada).....1961	Permanent Representative ....	19, rue de Franqueville, Paris XVI <sup>e</sup> , France
Pakistan.....1950	High Commissioner.....	Hotel Shahrazad, Islamabad, West Pakistan. Postal address: P.O. 1042, GPO, Islamabad
Panama.....1961	*Ambassador.....	c/o Canadian Embassy, Edificio Amalia, Avenida 1 y Calle 7. Postal address: Apartado Postal 10303, San José, Costa Rica
Paraguay.....1962	*Ambassador.....	c/o Canadian Embassy, Brunetta Bldg., Suipacha and Santa Fé, Buenos Aires, Argentina. Postal address: Casilla de Correo 1598
Peru.....1944	Ambassador.....	Edificio El Pacifico-Washington, 7 <sup>o</sup> Piso, Plaza Washington. Postal address: Casilla 1212, Lima
Philippines.....1949	Consul General.....	1414 Roxas Blvd., Manila. Postal address: P.O. Box 1825
Poland.....1943	Ambassador.....	Ulica Matejki 1/5, Srodmiestcie, Warsaw
Portugal.....1952	Ambassador.....	Rua Rosa Araujo 2, Lisbon 2
Puerto Rico.....1969	Consul and Trade Commissioner.....	Panam Bldg., Hato Rey, San Juan 00917
Romania.....1968	*Ambassador.....	c/o Canadian Embassy, Proleterskih Brigada 69, Belgrade, Yugoslavia
Rwanda.....1967	*Ambassador.....	c/o Canadian Embassy, Edifice Shell, coin av. Wangata et boul. du 30-juin, Kinshasa, Congo. Postal address: P.O. Box 8341
San Marino.....	*Consul.....	c/o Canadian Embassy, Via G. B. de Rossi 27, 00161 Rome, Italy
Senegal.....1962	Ambassador.....	45, avenue de la République. Postal address: P.O. Box 3373, Dakar
Sierra Leone.....1961	*High Commissioner.....	c/o Office of the High Commissioner for Canada, Niger House, Tinubu Street, Lagos, Nigeria. Postal address: P.O. Box 851
Singapore.....1966	High Commissioner.....	International Building, 360 Orchard Road. Postal address: P.O. Box 845, Singapore
Somali Republic.....1968	*Ambassador.....	c/o Canadian Embassy, African Solidarity Insurance Building, Haile Selassie 1 Square, Addis Ababa, Ethiopia. Postal address: P.O. Box 1130
South Africa.....1940	Ambassador.....	NBSA Centre, Church and Beatrix Sts. Postal address: P.O. Box 2181, Pretoria
Spain.....1953	Ambassador.....	Edificio España, Plaza de España 2. Postal address: Apartado 587, Madrid
Sudan.....1961	*Ambassador.....	c/o Canadian Embassy, 6 Sharia Mohamed Fahmi el Sayed, Garden City, Cairo, U.A.R. Postal address: Kasr el Doubara Post Office
Swaziland.....1970	*High Commissioner.....	c/o Canadian Embassy, NBSA Centre, Church and Beatrix Sts. Postal address: P.O. Box 2181, Pretoria, South Africa

\* Dual accreditation; representative not resident in the country.

## 1.—Canadian Representation Abroad—continued

Country and Year Representation Established	Present Status of Representative	Address
Sweden.....1947	Ambassador.....	Kungsgatan 24, Stockholm C. Postal address: P.O. Box 14042, S-104 40 Stockholm 14
Switzerland.....1947	Ambassador.....	88 Kirchenfeldstrasse, Berne
Syrian Arab Republic.....1965	*Ambassador.....	c/o Canadian Embassy, Immeuble Alpha, rue Clemenceau, Beirut, Lebanon. Postal address: C.P. 2300
Tanzania, United Republic of.....1962 (1964)	High Commissioner.....	Gailey and Roberts Bldg., Independence Ave. Postal address: P.O. Box 1022, Dar-es-Salaam
Thailand.....1961	Ambassador.....	Thai Farmers Bank Bldg., 142 Silom Road, Bangkok
Togo.....1962	*Ambassador.....	c/o Office of the High Commissioner for Canada, E115/3 Independence Ave., Accra, Ghana. Postal address: P.O. Box 1639
Tonga.....	*High Commissioner.....	c/o P.O. Box 12-049, Wellington North, New Zealand
Trinidad and Tobago.....1962	High Commissioner.....	72 South Quay, Port-of-Spain, Trinidad. Postal address: P.O. Box 1246
Tunisia.....1961	Ambassador.....	3, rue Didon, Notre-Dame de Tunis. Postal address: P.O. Box 606, Tunis R.P.
Turkey.....1947	Ambassador.....	Vali Dr. Resit, Cadessi 52, Çankaya, Ankara
Uganda.....1962	*High Commissioner.....	c/o Office of the High Commissioner for Canada, Industrial Promotion Services Bldg., Kimathi Street, Nairobi, Kenya. Postal address: Box 30481
Union of Soviet Socialist Republics.....1943	Ambassador.....	23 Starokonyushenny Pereulok, Moscow
United Arab Republic.....1954	Ambassador.....	6 Sharia Mohamed Fahmi el Sayed, Garden City. Postal address: Kasr el Doubara Post Office, Cairo
United Nations (The Permanent Mission of Canada to the United Nations).....1948	Permanent Representative and Ambassador.....	866 United Nations Plaza, New York, N.Y. 10017
(The Permanent Mission of Canada to the Office of the United Nations at Geneva).....1948	Permanent Representative and Ambassador.....	10A, avenue de Budé, 1202 Geneva, Switzerland
(Canadian Delegation to the Conference of the Eight- een-Nation Committee on Disarmament).....1962	Ambassador and Adviser to the Government on Disarmament	10A, avenue de Budé, 1202 Geneva, Switzerland
(Permanent Delegation of Canada to the United Nations Educational, Scientific, and Cultural Organization).....1960	Minister and Permanent De- legate.....	1, rue Miollis, Paris XV*, France
United States of America.....1927	Ambassador.....	1746 Massachusetts Avenue, N.W. Washington, D.C. 20036
Boston.....	Consul General.....	500 Boylston St., Boston, Mass. 02116
Buffalo.....	Consul and Trade Commis- sioner.....	Erie County Savings Bank Bldg., 1400 Main Place, 396 Main St., Buffalo, N.Y. 14201
Chicago.....	Consul General.....	310 South Michigan Ave., Chicago, Ill. 60604
Cleveland.....	Consul and Trade Commis- sioner.....	Illuminating Bldg., 55 Public Square, Cleveland, Ohio 44113
Dallas.....	Consul and Trade Commis- sioner.....	2100 Adolphus Towers Bldg., 1412 Main St., Dallas, Texas 75202
Detroit.....	Consul and Trade Commis- sioner.....	1920 First Federal Bldg., 1001 Woodward Ave., Detroit, Mich. 48226
Los Angeles.....	Consul General.....	510 West Sixth St., Los Angeles 14, Cal. 90014
Minneapolis.....	Consul and Trade Commis- sioner.....	15 South Fifth St., Minneapolis, Minnesota 55402

\* Dual accreditation; representative not resident in the country.

## 1.—Canadian Representation Abroad—concluded

Country and Year Representation Established	Present Status of Representative	Address
New Orleans .....	Consul General.....	International Trade Mart, Suite 2110, 2 Canal St., New Orleans, La. 70130
New York.....	Consul General.....	680 Fifth Ave., New York 19, N.Y. 10019
Philadelphia.....	Consul and Trade Commis- sioner.....	Suite 1310, 3 Parkway Bldg., Philadelphia, Pa. 19102
San Francisco.....	Consul General.....	1 Maritime Plaza, Golden Gateway Center, San Francisco, Cal. 94111
Seattle.....	Consul General.....	Plaza 600, Sixth and Stewart, Seattle, Wash. 98101
Upper Volta.....1962	*Ambassador.....	c/o Canadian Embassy, Botreau-Roussel 9. Postal address: B.P. 21194, Abidjan, Ivory Coast
Uruguay.....1952	*Ambassador.....	c/o Canadian Embassy, Brunetta Building, Suipacha and Santa Fé. Postal address: Casilla de Correo 1598, Buenos Aires, Argentina
Venezuela.....1952	Ambassador.....	Avenida La Estancia No. 10, 16° Piso. Ciudad Comercial Tamanaco. Postal address: Apartado del Este 62302, Caracas
Viet-Nam (Delegation of Canada to the International Commission for Supervision and Control).....1954	Commissioner.....	Camp Vo Tanh. Postal address: P.O. Box 220, Saigon
West Indies (Associated States).....1967	Commissioner.....	c/o Office of the High Commissioner for Canada, 72 South Quay, Port-of-Spain, Trinidad. Postal address: P.O. Box 1246
Western Samoa.....	*High Commissioner.....	c/o Canadian High Commission, I.C.I. Bldg., Molesworth Street, Wellington North, New Zealand. Postal address: P.O. Box 12-049
Yugoslavia.....1943	Ambassador.....	Proleterskih Brigada 69, Belgrade
Zambia (Republic of).....1966	*High Commissioner.....	c/o Office of the High Commissioner for Canada, Gailey and Roberts Bldg., Independence Ave., Dar-es-Salaam, Tanzania. Postal address: P.O. Box 1022

## 2.—Representation of Other Countries in Canada

Country and Year Representation Established	Present Status of Representative	Address
Afghanistan.....1970	Ambassador.....	c/o Embassy of Afghanistan, 2341 Wyoming Ave. N.W., Washington, D.C. 20008, U.S.A.
Algeria.....1964	Ambassador.....	206 Rideau Terrace, Suites 402-403, Ottawa
Argentina.....1941	Ambassador.....	10 Driveway, Ottawa
Australia.....1940	High Commissioner.....	90 Sparks St., Suite 600, Ottawa
Austria.....1952	Ambassador.....	445 Wilbrod St., Ottawa
Barbados.....1967	High Commissioner.....	151 Slater St., Suite 200, Ottawa
Belgium.....1937	Ambassador.....	85 Range Rd., Ottawa
Bolivia.....1961	Ambassador.....	c/o Embassy of Bolivia, 1145 19th St. N.W., Washington, D.C. 20036, U.S.A.
Botswana.....1968	High Commissioner.....	c/o Embassy of the Republic of Botswana, 1825 Connecticut Ave. N.W., Washington, D.C. 20009, U.S.A.
Brazil.....1941	Ambassador.....	450 Wilbrod St., Ottawa
Britain.....1928	High Commissioner.....	80 Elgin St., Ottawa
Bulgaria.....1968	Ambassador.....	325 Stewart St., Ottawa
Burma.....1957	Ambassador.....	116 Albert St., Ottawa
Burundi.....1969	Ambassador.....	c/o Permanent Mission of Burundi to the United Nations, 485 Fifth Ave., New York, U.S.A.
Cameroon.....1962	Ambassador.....	85 Range Rd., Ottawa
Caribbean Commission (Eastern).....	Commissioner.....	14 Frontenac St., Place Bonaventure, Montreal 3, Que.

\* Dual accreditation; representative not resident in the country.



## 2.—Representation of Other Countries in Canada—continued

Country and Year Representation Established	Present Status of Representative	Address
Central African Republic.....	Ambassador.....	c/o Embassy of the Central African Republic, 1618-22nd St. N.W., Washington, D.C. 20008, U.S.A.
Ceylon.....1957	High Commissioner.....	85 Range Rd., Ottawa
Chile.....1942	Ambassador.....	56 Sparks St., Ottawa
China, People's Republic of.....	Ambassador.....	100 Bronson Ave., Ottawa, P.O. Box 8935, New Terminal, Alta Vista
Colombia.....1953	Ambassador.....	140 Wellington St., Ottawa
Congo, Democratic Republic of.....1965	Ambassador.....	18 Range Rd., Ottawa
Congo, People's Republic of.....1968	Ambassador.....	c/o Permanent Mission of the People's Republic of the Congo (Brazzaville) to the United Nations, 444 Madison Ave., New York, U.S.A.
Costa Rica.....1963	Ambassador.....	c/o Embassy of Costa Rica, 2112 S St. N. W., Washington, D.C. 20008, U.S.A.
Cuba.....1945	Ambassador.....	700 Echo Dr., Ottawa
Cyprus.....1964	High Commissioner.....	c/o Embassy of Cyprus, 2211 R St. N.W., Washington, D.C. 20008, U.S.A.
Czechoslovakia.....1942	Ambassador.....	171 Clemow Ave., Ottawa
Dahomey.....1964	Ambassador.....	c/o Embassy of Dahomey, 2737 Cathedral Ave. N.W., Washington, D.C. 20008, U.S.A.
Denmark.....1946	Ambassador.....	85 Range Rd., Ottawa
Dominican Republic.....1954	Ambassador.....	200 Rideau Terrace, Ottawa
Ecuador.....1961	Ambassador.....	56 Sparks St., Ottawa
El Salvador.....1962	Ambassador.....	c/o Embassy of El Salvador, 2308 California St. N.W., Washington, D.C. 20008, U.S.A.
Ethiopia.....1968	Ambassador.....	90 Sparks St., Ottawa
Fiji.....	High Commissioner.....	c/o Fiji Mission to the United Nations, 845 Third Ave., New York, N.Y. 10022, U.S.A.
Finland.....1948	Ambassador.....	85 Range Rd., Ottawa
France.....1928	Ambassador.....	42 Sussex Dr., Ottawa
Gabon.....1962	Ambassador.....	c/o Embassy of the Republic of Gabon, 4900-16th St. N.W., Washington, D.C., U.S.A.
Germany.....1951	Ambassador.....	1 Waverley St., Ottawa
Ghana.....1961	High Commissioner.....	85 Range Rd., Ottawa
Greece.....1942	Ambassador.....	Chateau Laurier Hotel, Ottawa
Guatemala.....1961	Ambassador.....	c/o Embassy of Guatemala, 2220 R St. N.W., Washington, D.C. 20008, U.S.A.
Guinea.....1962	Ambassador.....	c/o Embassy of the Republic of Guinea, 2112 Leroy Pl. N.W., Washington, D.C. 20008, U.S.A.
Guyana.....1966	Acting High Commissioner.....	151 Slater St., Ottawa
Haiti.....1954	Ambassador.....	150 Driveway, Ottawa
Holy See.....1969	Pro-Nuncio.....	724 Manor Ave., Rockcliffe Park, Ottawa
Honduras.....	Consul General.....	1225 St. Mark St., Montreal, Que.
Hungary.....1964	Chargé d'Affaires <i>ad interim</i> .....	7 Delaware Ave., Ottawa
Iceland.....1948	Ambassador.....	c/o Embassy of Iceland, 2022 Connecticut Ave. N.W., Washington, D.C. 20008, U.S.A.
India.....1947	High Commissioner.....	200 MacLaren St., Ottawa
Indonesia.....1953	Ambassador.....	85 Range Rd., Ottawa
Iran.....1956	Ambassador.....	85 Range Rd., Ottawa
Iraq.....1961	Third Secretary.....	c/o Embassy of India-Iraqi Interests Section, 1801 P St. N.W., Washington, D.C. 20036, U.S.A.
Ireland.....1939	Ambassador.....	170 Metcalfe St., Ottawa
Israel.....1953	Ambassador.....	45 Powell Ave., Ottawa
Italy.....1947	Ambassador.....	172 MacLaren St., Ottawa
Ivory Coast.....1964	Ambassador.....	c/o Embassy of the Ivory Coast Republic, 2424 Massachusetts Ave. N.W., Washington, D.C. 20008, U.S.A.
Jamaica.....1962	High Commissioner.....	85 Range Rd., Ottawa
Japan.....1928	Ambassador.....	75 Albert St., Ottawa
Jordan.....1969	Ambassador.....	c/o Embassy of the Hashemite Kingdom of Jordan, 2319 Wyoming Ave. N.W., Washington, D.C. 20008, U.S.A.
Korea, Republic of.....1963	Ambassador.....	151 Slater St., Ottawa
Kuwait.....1965	Ambassador.....	c/o Embassy of Kuwait, 2940 Tilden St. N.W., Washington, D.C. 20008, U.S.A.
Latvia.....	Acting Consul.....	5210 Dalou St., Montreal 29, Que.
Lebanon.....1955	Ambassador.....	640 Lyon St., Ottawa

## 2.—Representation of Other Countries in Canada—continued

Country and Year Representation Established	Present Status of Representative	Address
Lesotho.....1968	High Commissioner.....	c/o Embassy of the Kingdom of Lesotho, 1601 Connecticut Ave. N.W., Washing- ton, D.C. 20009, U.S.A.
Liberia.....	Ambassador.....	c/o Embassy of Liberia, 5201-16th St. N.W., Washington, D.C. 20011, U.S.A.
Lithuania.....	Acting Honorary Consul General.....	1 Trillium Terrace, Toronto 18, Ont.
Luxembourg.....1950	Ambassador.....	c/o Embassy of Luxembourg, 2210 Massa- chusetts Ave. N.W., Washington, D.C. 20008, U.S.A.
Madagascar.....1965	Ambassador.....	c/o Permanent Mission of the Malagasy Republic to the United Nations, 301 E. 47th St., Suite 2H, New York, N.Y. 10017, U.S.A.
Malaysia.....1967	High Commissioner.....	130 Albert St., Ottawa
Mali.....1963	Ambassador.....	c/o Embassy of Mali, 2130 R St. N.W., Washington, D.C. 20008, U.S.A.
Malta.....1969	High Commissioner.....	c/o Embassy of Malta, 2017 Connecticut Ave. N.W., Washington, D.C. 20008, U.S.A.
Mauritania.....1968	Ambassador.....	c/o Permanent Mission of the Islamic Re- public of Mauritania to the United Na- tions, 8 West 40th St., New York, U.S.A.
Mauritius.....1970	High Commissioner.....	c/o Embassy of Mauritius, 2308 Wyoming Ave. N.W., Washington, D.C. 20008, U.S.A.
Mexico.....1944	Ambassador.....	88 Metcalfe St., Ottawa
Monaco.....	Honorary Consul General.....	Tour de la Bourse, Place Victoria, Montreal 3, Que.
Morocco.....1962	Ambassador.....	c/o Embassy of Morocco, 1601-21st St. N.W., Washington, D.C. 20009, U.S.A.
Nepal.....1966	Ambassador.....	c/o Embassy of Nepal, 2131 Leroy Pl. N.W., Washington, D.C. 20008, U.S.A.
Netherlands.....1939	Ambassador.....	275 Slater St., Ottawa
New Zealand.....1942	High Commissioner.....	77 Metcalfe St., Ottawa
Nicaragua.....1963	Ambassador.....	c/o Embassy of Nicaragua, 1627 New Hamp- shire Ave. N.W., Washington, D.C. 20009, U.S.A.
Niger.....1963	Ambassador.....	c/o Embassy of Niger, 2204 R St. N.W., Washington, D.C. 20008, U.S.A.
Nigeria.....1966	High Commissioner.....	151 Slater St., Ottawa
Norway.....1942	Ambassador.....	140 Wellington St., Ottawa
Pakistan.....1949	High Commissioner.....	505 Wilbrod St., Ottawa
Panama.....1962	Ambassador.....	c/o Embassy of Panama, 2601-29th St. N.W., Washington, D.C. 20008, U.S.A.
Peru.....1944	Ambassador.....	539 Island Park Dr., Ottawa
Philippines.....	Ambassador.....	130 Albert St., Ottawa
Poland.....1942	Ambassador.....	443 Daly Ave., Ottawa
Portugal.....1952	Ambassador.....	645 Island Park Dr., Ottawa
Romania.....1967	Ambassador.....	473-475 Wilbrod St., Ottawa
Rwanda.....1965	Ambassador.....	130 Albert St., Ottawa
Senegal.....1963	Ambassador.....	c/o Embassy of the Republic of Senegal, 2112 Wyoming Ave. N.W., Washington, D.C. 20008, U.S.A.
Sierra Leone.....1968	High Commissioner.....	c/o Embassy of Sierra Leone, 1701-19th St. N.W., Washington, D.C. 20009, U.S.A.
Singapore.....1969	High Commissioner.....	c/o Permanent Mission of Singapore to the United Nations, 711 Third Ave., New York, U.S.A.
Somalia.....1968	Ambassador.....	c/o Permanent Mission of the Somali Re- public to the United Nations, 236 E. 46th St., New York, U.S.A.
South Africa.....1938	Ambassador.....	15 Sussex Dr., Ottawa
Spain.....1953	Ambassador.....	124 Springfield Rd., Ottawa
Sudan.....1966	Ambassador.....	c/o Permanent Mission of the Sudan to the United Nations, 757 Third Ave., New York 10017, U.S.A.
Swaziland.....1968	High Commissioner.....	c/o Embassy of the Kingdom of Swaziland, Georgetown Bldg., 2233 Wisconsin Ave. N.W., Washington D.C. 20007, U.S.A.
Sweden.....1943	Ambassador.....	140 Wellington St., Ottawa
Switzerland.....1946	Ambassador.....	5 Marlborough Ave., Ottawa
Syria.....	Ambassador.....	c/o Permanent Mission of the Arab Republic to the United Nations, 150 E. 55th St., Suite 1500, New York, N.Y. 10022, U.S.A.

## 2.—Representation of Other Countries in Canada—concluded

Country and Year Representation Established	Present Status of Representative	Address
Tanzania.....1965	High Commissioner.....	124 O'Connor St., Ottawa
Thailand.....1962	Ambassador.....	85 Range Rd., Ottawa
Togo.....1966	Ambassador.....	c/o Embassy of the Republic of Togo, 2208 Massachusetts Ave. N.W., Washington, D.C. 20008, U.S.A.
Trinidad and Tobago.....1962	High Commissioner.....	75 Albert St., Ottawa
Tunisia.....1957	Ambassador.....	515 O'Connor St., Ottawa
Turkey.....1944	Ambassador.....	197 Wurttemberg St., Ottawa
Uganda.....1964	High Commissioner.....	c/o Permanent Mission of Uganda to the United Nations, 801 Second Ave., New York, U.S.A.
Union of Soviet Socialist Re- publics.....1942	Ambassador.....	285 Charlotte St., Ottawa
United Arab Republic.....1954	Ambassador.....	454 Laurier Ave. E., Ottawa
United States of America.....1927	Ambassador.....	100 Wellington St., Ottawa
Upper Volta.....1966	Ambassador.....	c/o Embassy of the Republic of Upper Vol- ta, 5500-16th St. N.W., Washington, D.C. 20008, U.S.A.
Uruguay.....1948	Ambassador.....	c/o Embassy of Uruguay, 1918 F St. N.W., Washington, D.C. 20006, U.S.A.
Venezuela.....1953	Ambassador.....	151 Sparks St., Ottawa
Yugoslavia.....1942	Ambassador.....	17 Blackburn Ave., Ottawa
Zambia.....	High Commissioner.....	c/o Permanent Mission of the Republic of Zambia to the United Nations, 150 E. 58th St., New York, N.Y. 10022, U.S.A.

**Federal-Provincial Aspects of Canada's International Relations.**—As a result of expanding provincial interests abroad and of the Federal Government's desire to develop more effective procedures to deal with them, machinery was established in 1967 within the Department of External Affairs to maintain close liaison with the provinces and to facilitate their international activities in a manner that would fully meet provincial objectives and at the same time be consistent with a unified Canadian foreign policy.

The Federal Government's position in this regard was outlined in the White Paper *Federalism and International Relations*, published early in 1968, in which it was emphasized that the Government was anxious to ensure that Canada's foreign relations would serve the best interests of all the provinces as well as those of the two major linguistic communities in Canada. Federal Government assistance to the provinces in this regard, therefore, is provided pursuant to a number of Government policies which include the continued promotion of national unity through an adequate projection internationally of Canada's distinct bilingual character, the preservation of Canada's international personality and the desirability of giving appropriate recognition to legitimate provincial interests beyond provincial borders.

In meeting some of these objectives, Canada participates in a variety of Francophone conferences, of particular interest to Quebec, New Brunswick, Ontario and Manitoba, where the Federal Government arranges and co-ordinates provincial participation of Canadian delegations to these conferences. In this connection, considerable attention was focused in 1970 on the founding conference, the Agence de coopération culturelle et technique, held at Niamey, Niger. At the annual general conference of the Agence, held in Canada in October 1971 and attended by over 200 delegates from the Francophone world, Quebec was admitted as a participating government to the institutions, activities and programs according to modalities worked out between the Government of Quebec and the Government of Canada.

Provincial participation in other international conferences and in the work of international organizations on a wide range of subjects, including human and civil rights, education, health, agriculture, labour and social defence, is assured by the inclusion on Canadian



delegations (where possible) of interested provincial officials, and by the canvassing of provincial governments (as appropriate) for their views on the positions and attitudes which Canada might adopt on these subjects internationally.

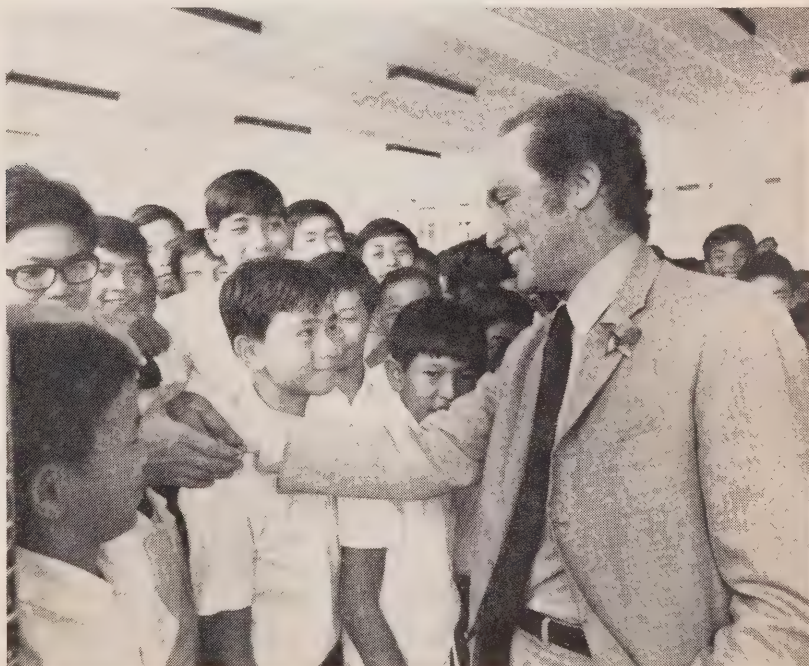
Other aspects of Canada's international relations that are of particular interest to the provinces include the promotion of trade, investment, new industries, immigration, tourism, cultural exchanges, environmental questions, science and technology, assistance to developing countries and bilateral and multilateral agreements.

The promotional activities of the provinces have led to an increasing number of provincial visitors to foreign countries, and the Federal Government, through the Department of External Affairs and Canada's network of Embassies and High Commissions abroad, has provided and continues to provide assistance to provincial premiers, ministers and officials in making necessary arrangements and appropriate appointments for their visits abroad. The Federal Government also assists in the co-ordination of visits of foreign personalities to provincial capitals.

With respect to Canada's program of assistance to developing countries, the Federal Government actively encourages wider federal-provincial consultation in order to ensure that specific aid projects initiated by the provinces are co-ordinated with the activities of the Canadian International Development Agency (CIDA) and with Canada's aid contribution as a whole.

Concerning the conclusion of treaties, conventions and other formal agreements between Canada and other countries, the Federal Government consults with the provinces regarding the ratification by Canada of all such agreements touching upon fields of provincial or joint federal-provincial jurisdiction. Such consultation is often undertaken before or in the negotiating stage of the treaties affecting them and provides the most effective means of harmonizing federal and provincial interests.

Prime Minister Trudeau  
visiting Singapore's  
Boys Town, a combined  
orphanage and educa-  
tional centre operated  
since 1938 by the  
Brothers of St. Gabriel,  
a Canadian teaching  
order. A grant of  
\$100,000 from the  
Canadian International  
Development Agency  
has helped build a new  
grades school with  
space for 600 boys.



### Section 3.—International Activities, 1970-71

#### Subsection 1.—Canada and the Commonwealth

Over the years the Commonwealth has evolved significantly in size, shape and outlook from the compact and like-minded family of nations of predominantly European stock which first constituted the Commonwealth association at the time of the enactment of the Statute of Westminster in 1931. With its present membership of 31 sovereign states covering about one quarter of the earth's land surface, representing approximately 850,000,000 people of many races, colours, creeds and languages, and including both economically developed and developing countries as well as governments committed and uncommitted in the international power groupings, the Commonwealth more accurately reflects the world over which it spreads so widely. The interests of its members extend to all continents and the variety of issues demanding their attention has greatly increased during the decade of the 1960s and will undoubtedly continue in the 1970s.

Commonwealth members listed according to the year (if post-1931, noted in brackets) when membership was proclaimed are as follows: Britain; Canada; Australia; New Zealand; India (1947); Pakistan (1947); Ceylon (1948); Ghana (1957); Malaya (1957)\*; Nigeria (1960); Cyprus (1961); Sierra Leone (1961); Tanganyika (1961)†; Jamaica (1962); Trinidad and Tobago (1962); Uganda (1962); Kenya (1963); Malawi (1964); Malta (1964); Zambia (1964); The Gambia (1965); Singapore (1965)\*; Guyana (1966); Botswana (1966); Lesotho (1966); Barbados (1966); Mauritius (1968); Swaziland (1968); Tonga (1970); Western Samoa (1970); and Fiji (1970). Nauru, which became fully independent in 1968, has "special" membership in the Commonwealth which entitles it to all the advantages of membership except attendance at Prime Ministers' Conferences. Through their association with the United Kingdom, which remains responsible for Foreign Affairs and Defence, the six West Indies Associated States (Antigua, Dominica, Grenada, St. Kitts-Nevis-Anguilla, St. Lucia and St. Vincent) also have an appropriate relationship with the Commonwealth.

One important aspect of Canadian foreign policy has been continuing membership in the Commonwealth. Canada has supported the extension and development of a vigorous and effective Commonwealth capable of exerting a beneficial influence for international peace and progress. Commonwealth ties give Canada a special relationship with this group of nations which, despite the diversity of their backgrounds, share important common ideals and traditions. These ties are characterized in the main by a spirit of co-operation developed through consultation and a continuous exchange of views. These exchanges at many levels take place not only in Commonwealth capitals but also in other countries as well as at the United Nations and in other international gatherings.

The Commonwealth Secretariat was established by a 1965 decision of Prime Ministers and is located in Marlborough House in London. The first Secretary-General of the organization is Mr. Arnold Smith, a Canadian whose appointment has been extended for a second five-year term. The Secretariat has the responsibility of organizing and servicing official Commonwealth conferences; it facilitates the exchange of information between member countries and generally stands at the service of all Commonwealth governments as a visible symbol of the spirit of co-operation which animates the Commonwealth. Canada's contribution to the 1970-71 budget of the Secretariat was \$280,155, representing 18.8 p.c. of the total.

The single most important conference organized by the Secretariat is that of the Commonwealth Heads of Government; the latest was held in Singapore in January 1971.

\* When Singapore, Sarawak and Sabah joined the Federation in September 1963, Malaya became Malaysia; Singapore separated from Malaysia in August 1965 to become an independent republic.

† In early 1964, Tanganyika and Zanzibar joined to form the United Republic of Tanzania.

Meetings arranged by the Secretariat in 1970-71 included the Fifth Commonwealth Education Conference held in Australia in February 1971, the annual meeting of Commonwealth Finance Ministers and Senior Finance Officials in Cyprus in September 1970, and a number of special or regional meetings including the Caribbean Regional Seminar on Youth held in Trinidad and Tobago in August 1970. Immediately prior to the 1970 World Health Assembly Meeting held in Geneva, Commonwealth representatives in attendance met to discuss plans for the Commonwealth Medical Conference to be held in Mauritius in November 1971.

Commonwealth developing countries continued to receive considerable amounts of Canadian assistance. Canada's total allocated contribution under the Colombo Plan from its inception in 1951 to March 1971 was approximately \$1,371,000,000 (see pp. 199-200). Canadian allocations to Commonwealth countries in Africa through SCAAP amounted to more than \$179,000,000 for the period from 1960 to March 1971, and approximately \$128,000,000 was allocated to Commonwealth Caribbean countries from 1958 to March 1971.

Canada is an active participant in the Commonwealth Scholarship and Fellowship Plan which has been administered in this country by the Association of Universities and Colleges of Canada since 1969. Canada also supports the training and provision of teachers for service in Commonwealth countries and assists in plans for co-operation in technical education.

### **Subsection 2.—Francophonie**

Heir to the great traditions of the French language and culture, Canada contributes fully to the establishment of special links between francophone countries. Its bilateral relations with France have developed greatly in recent years through political consultations, parliamentary visits, cultural and scientific exchanges, increased trade, officer exchanges, defence production co-operation, and the like. Links with other French-speaking countries have also been strengthened by the establishment of diplomatic missions and developing exchanges in a number of fields. A growing proportion of Canadian economic aid has been directed to francophone countries in Africa. Canada has played an active role in developing multilateral co-operation between French-speaking countries, a policy based on the recognition of the value to Canada of its ties with a multi-racial community of some 30 countries with 150,000,000 inhabitants, linked together by French culture. In keeping with this policy, Canada is a founding member of the Agence de coopération culturelle et technique which came into being as a result of the conference of the wholly or partly French-speaking states of the world held at Niamey, capital of the Republic of Niger, in March 1970. Canada is also a member of the Conference of Education Ministers of the Francophone States of Africa and Madagascar. Likewise, Canada is a founding member of the Conference of the Youth and Sports Ministers of Francophone Africa and Madagascar which came into being in Paris in December 1969. Canadian participation is on the basis of full federal co-operation with the provinces interested in these organizations.

### **Subsection 3.—Canada and the United Nations**

Firm support for the United Nations is an essential element of Canadian foreign policy. Canada has contributed over the years to the efforts of the organization to keep the peace in various parts of the world, including the Middle East, Kashmir, the Congo, West Irian and Cyprus. In the 1956 Middle East crisis, Canada played a significant role in the establishment of the United Nations Emergency Force and participated in the Force until its withdrawal in 1967. In 1960, Canada responded to a UN request for support of its operations in the Congo by supplying military and civilian specialists and by pledging political and financial support. In 1962, Canada provided aircraft, pilots and maintenance crews to assist the United Nations Temporary Executive Authority (UNTEA) in the exercise of its peacekeeping functions in West Irian. Canada maintains a large contingent in Cyprus (UNFICYP) to assist the UN to prevent open fighting between the Greek and Turkish



communities. Canada has consistently advocated the strengthening of the peace-keeping capacity of the UN by means of advance planning at UN headquarters and advance cost-sharing arrangements and has taken steps to improve the readiness of its own forces and urged that others be invited to do the same. Despite slow progress and occasional setbacks, Canada continues to believe that the UN has an important role to play in the maintenance of international peace and security.

Canada also participates directly in the work of the UN through its membership in various UN bodies including all of the 13 specialized agencies and the International Atomic Energy Agency. The International Civil Aviation Organization (ICAO), with headquarters in Montreal, is the only specialized agency of the UN with headquarters in Canada.

While not at present a member of the Economic and Social Council, Canada does hold membership on many of its most important sub-bodies, including the Economic Commission for Latin America, the Commission on Narcotic Drugs, the Commission for Social Development, the Commission on the Status of Women, the Subcommission on the Prevention of Discrimination and Protection of Minorities of the Commission of Human Rights (a Canadian is a member in his personal capacity), the Advisory Committee on Application of Science and Technology to Development (ACAST), and the Committee on Natural Resources.

Canada serves on the Governing Council of the United Nations Development Programme (UNDP) and on the Executive Board of the United Nations Children's Fund (UNICEF); is a member of the Trade and Development Board of the United Nations Conference on Trade and Development (UNCTAD); is a member of the Executive Committee of the Office of the United Nations High Commissioner for Refugees (since the Second World War, Canada has received approximately 350,000 refugees from overseas); and is a member of two of UNCTAD's four main committees—the Committee on Manufactures and the Committee on Invisibles and Financing Relating to Trade.

Canada belongs to 18 subsidiary or *ad hoc* bodies of the General Assembly, including the Committee on the Peaceful Uses of Outer Space, the Disarmament Commission, the Special Committee on Peacekeeping Operations and the United Nations Scientific Committee on the Effects of Atomic Radiation, the Board of Auditors, the United Nations Scientific Advisory Committee, the Conference of the Committee on Disarmament, the Special Committee on the Rationalization of the Procedures and Organization of the General Assembly, and the Committee on the Peaceful Uses of the Sea-Bed and Ocean Floor beyond the limits of National Jurisdiction. Canada is also a member of the Preparatory Committee for the United Nations Conference on the Human Environment which will be held in Stockholm in the fall of 1972. Canada maintains Permanent Missions at both UN headquarters in New York and at the European Office of the organization in Geneva.

Canada pays 3.08 p.c. of the organization's regular budget, and is the eighth largest contributor. In the UN financial year 1971, Canada's share of the net expenditures of about \$160,000,000 was approximately \$4,900,000. The cost to Canada of maintaining its contingent in Cyprus was about \$1,800,000 in 1970-71. In addition, Canada makes voluntary contributions to special UN programs such as the United Nations Development Programme (UNDP), the United Nations High Commissioner for Refugees (UNHCR), the United Nations Children's Fund (UNICEF), the United Nations Relief and Works Agency in the Middle East (UNRWA) and the World Food Programme (WFP).

Canada's total assessment and contributions to the UN, its specialized agencies and related bodies totalled approximately \$510,000,000 during the period 1945-71 and about \$50,000,000 in 1970-71. The Canadian subscription to the World Bank now totals \$856,000,000 or 3.43 p.c. of the total. The International Development Association, which is an affiliate of the World Bank, has received from Canada interest-free contributions or pledges which, since its inception, amount to \$167,000,000, including a recent replenishment of \$36,000,000. The International Finance Corporation, also a member of the World Bank group, has a total paid-in capital of about \$107,000,000 out of which the Canadian subscription amounts to \$3,600,000.

**Canadian Financial Contributions to the United Nations.**—In 1970-71, Canada's contributions to the United Nations system were as follows:—

<i>Agency</i>	<i>Percentage Assessment or Voluntary Contribution (V)</i>	<i>Contribution (Cdn. \$)</i>
<b>United Nations—</b>		
Regular Budget.....	3.08	4,891,000
<b>Special Accounts—</b>		
Force in Cyprus (UNFICYP).....	V	1,200,000 <sup>1</sup>
Congo Civilian Fund.....	V	250,000 <sup>2</sup>
Relief and Works Agency (UNRWA)—		
Cash.....	V	650,000
Food Aid.....	V	700,000
World Food Programme—		
Cash.....	V	4,031,000
Commodities.....	V	12,500,000
United Nations High Commissioner for Refugees (UNHCR).....	V	400,000
United Nations Development Programme (UNDP)....	V	15,267,000
Children's Fund (UNICEF).....	V	1,200,000
Institute for Training and Research (UNITAR).....	V	60,000
UN Educational and Training Programme for Southern Africa.....	V	26,750
Fund for Population Activities (UNFPA).....	V	1,015,000
<b>Specialized Agencies and the IAEA—</b>		
International Labour Organization (ILO).....	3.36	1,072,000
Food and Agricultural Organization (FAO).....	3.80	1,226,000
World Health Organization (WHO).....	2.72	2,813,000
United Nations Educational, Scientific and Cultural Organ- ization (UNESCO).....	2.91	1,174,000
International Civil Aviation Organization (ICAO).....	3.65	259,000
Inter-governmental Maritime Consultative Organization (IMCO).....	1.36	18,000
International Telecommunication Union (ITU).....	3.79	245,000
World Meteorological Organization (WMO).....	2.62	87,000
Universal Postal Union (UPU).....	2.64	87,000
International Development Association (IDA).....	V	34,574,000
International Bank for Reconstruction and Development (IBRD).....	V	—
International Finance Corporation (IFC).....	V	—
International Monetary Fund (IMF).....	V	—
International Atomic Energy Agency (IAEA)—		
Regular Budget.....	2.73	351,000
Operational Budget.....	V	57,000
<b>Related Organizations—</b>		
International Committee of the Red Cross.....	V	20,000
United Nations Association in Canada.....	V	27,000

<sup>1</sup> Estimated. This figure from April 1970 to March 1971 represents the cost to Canada of maintaining its contingent in Cyprus after reimbursement for certain expenses by the United Nations; it does not include salaries and similar costs that Canada would have had to pay if the personnel had remained in Canada. <sup>2</sup> This allocation to the Fund is a payment, not a disbursement.

**Specialized Agencies.**—Canada is a member of each of the 13 specialized agencies of the UN, and also of the International Atomic Energy Agency (IAEA), an autonomous international organizations under the aegis of the UN. These agencies are invested with wide international responsibilities established by intergovernmental agreement, and act in relationship with the UN to assist in carrying out the terms of the Charter. Co-ordination of activities of the agencies is promoted by the Administrative Committee on Co-ordination established by the Economic and Social Council. This Committee is composed of the Secretary General of the UN, the executive heads of the specialized agencies, the Director General of the IAEA and other high officials of the UN. It considers common administrative questions, inter-agency program co-ordination and projects or problems of special urgency to be undertaken jointly by several agencies.

**International Labour Organization.**—The International Labour Organization (ILO) was originally established with the League of Nations in 1919 and became a specialized

agency of the UN in 1946. It brings together representatives of governments, employers and workers from 121 (1970) member states in an attempt to promote social justice by improving living and working conditions in all parts of the world. The ILO is responsible for a number of technical programs financed by the United Nations Development Programme, as well as training programs under its regular budget. It holds numerous meetings during the year as well as a conference in Geneva each June.

*Food and Agriculture Organization.*—The Food and Agriculture Organization (FAO) celebrated its 25th anniversary in 1970. The First Conference was held in 1945 in Quebec. It is one of the largest of the specialized agencies, now having 125 members. Among its objectives are the raising of levels of nutrition and living standards of its members, the improvement in the techniques of production and distribution of food and agricultural, fishery and forestry products as well as the improvement of the condition of rural populations. To this end, the FAO Secretariat provides services of common benefit to its member countries such as the provision of expert advice, the collection and publication of agricultural and fisheries statistics, the organization of international conferences and meetings of experts concerned with agricultural, forestry and fisheries problems.

The FAO Council meets twice a year to give direction and policy guidance to the Secretariat; the FAO Conference meets every other year. Its 16th meeting was held in November 1971 at Rome. FAO headquarters are in Rome and regional offices are located in Washington, Bangkok, Rio de Janeiro, Santiago and Cairo. Canada participates actively in FAO functions and is a member of the Council, the Committee on Commodity Problems (CCP), the Consultative Sub-committee on Surplus Disposals, the FAO Group on Grains, the North American Forestry Commission, the Commission on Fisheries and other FAO bodies.

The World Food Programme first began operations on a three-year experimental basis at the beginning of 1963 under the joint auspices of the FAO and the UN. At the end of 1965, it was decided that the progress achieved warranted its establishment on a regular and continuing basis for as long as multilateral aid was found to be possible and desirable. One of its aims is to provide food aid on a multilateral basis for emergency relief and to promote economic and social development, including the feeding of children. At a UN-FAO Pledging Conference in New York in January 1970, \$215,600,000 was pledged toward a two-year program (1971-72). Canada with a pledge of \$30,000,000 is the second largest supporter of the Programme. In 1971, the Intergovernmental Committee (IGC) of the WFP approved a target of \$340,000,000 for the next biennium.

*World Health Organization.*—The World Health Organization (WHO) came into being in 1948 and is also one of the largest of the specialized agencies of the UN, having a total membership of 131 including three associate members. Functioning through the World Health Assembly, the Executive Board, the Secretariat and six Regional Committees, WHO acts as a directing and co-ordinating authority on international health matters. The objective of the Organization, as set out in its constitution, is "the attainment by all peoples of the highest possible level of health". In order to pursue this goal, the WHO, with headquarters in Geneva, provides advisory and technical services to help countries develop and improve their national health services. The 24th World Health Assembly was held in Geneva in May 1971. In order to bring into public focus the health problems with which the Organization is attempting to deal, the Assembly has proposed the celebration of a World Health Day in 1972.

*United Nations Educational, Scientific and Cultural Organization.*—The UNESCO was established in 1946 "to contribute to peace and security by promoting collaboration among the nations through education, science and culture in order to further universal respect for justice, for the rule of law, for human rights and fundamental freedoms". Its headquarters is in Paris and total membership is 126 states.

The Organization is made up of three principal organs—the General Conference which is the policy-making body, the Executive Board and the Secretariat. Representatives from member states make up the General Conference which meets every two years to con-



sider applications for membership, elect the Executive Board, plan the program and approve the budget for the ensuing two-year period. There is a Canadian member of the Executive Board who will serve on that body until his term expires in 1974. The 16th Session of the General Conference, held in Paris in October and November 1970, approved a budget of \$89,898,560 (U.S.) for 1971-72, giving priority to the educational needs of the developing countries and to science activities, particularly of the application of science to development; the Canadian assessment rate is 2.91. Further information about the Organization may be obtained from the Canadian Commission for UNESCO, Ottawa.

*International Civil Aviation Organization.*—The ICAO, with headquarters in Montreal, was established in 1947 to promote the safe, orderly and economic development of international civil aviation. It has a membership of 121 (1971). ICAO operations are conducted through its Assembly, Council, committees and Secretariat. Canada has been a member of the 27-nation Council, the governing body of ICAO, since its inception.

*International Telecommunication Union.*—Canada is a member of the International Telecommunication Union (ITU), which traces its origin to the International Telegraph Convention of 1865 and the International Radio Telegraph Convention of 1906. The ITU is concerned with the maintenance of international co-operation for the improvement and use of telecommunications of all kinds for the benefit of the general public. It has 129 member countries. The International Telecommunication Convention which was adopted by the Plenipotentiary Conference of the Union at Montreux, Switzerland, in 1965 came into force on Jan. 1, 1967. Canada is represented on the 29-member Administrative Council, the executive organ of the ITU.

*World Meteorological Organization.*—Canada is a member of the World Meteorological Organization (WMO), a specialized agency of the UN since 1951 but developed from the International Meteorological Organization founded in 1878. The membership in 1970 was 133. One of the major programs of the WMO is the "World Weather Watch" for the development of an improved world-wide meteorological system and environment. Canada is a member of the Executive Committee of the Organization.

*Inter-Governmental Maritime Consultative Organization.*—The Inter-Governmental Maritime Consultative Organization (IMCO) was established in 1959 to promote international co-operation on technical shipping problems and the adoption of the highest standards of safety and navigation; its membership in 1971 was 73. IMCO exercises bureau functions for International Conventions on Safety of Life at Sea, Prevention of Pollution of the Sea by Oil and Facilitation of International Maritime Traffic. At the 7th Assembly in 1971, Canada was elected to the Council of IMCO for a two-year term and continues to hold a seat on the Maritime Safety Committee.

*Universal Postal Union.*—The Universal Postal Union (UPU) is one of the oldest and largest of the specialized agencies, having been founded in Berne in 1874 with the principal aim of improving postal services throughout the world and promoting international collaboration; membership in 1970 was 143. The Universal Postal Congress is the supreme authority of the UPU and normally meets every five years to review the Universal Postal Convention and its subsidiary instruments. In the interim, UPU activities are carried on by an executive council, a consultative committee on postal studies, and an international bureau. The 16th Congress was held in Tokyo in 1969.

*International Monetary Fund.*—The IMF, established by the Bretton Woods Conference in 1944, came into being in 1945. It provides machinery for international consultation and collaboration on monetary, payment and exchange problems, including the promotion of exchange stability, the elimination of exchange restrictions, the establishment of a multilateral system of current payments and the expansion and balanced growth of international trade. Also, member countries under certain conditions may draw on the regular resources of the Fund, which now amount to some \$30,000,000,000 (of which the

equivalent of about \$4,500,000,000 is in gold) or on the supplementary resources of \$6,000,000,000 made available in 1962 under the General Arrangements to Borrow, which have since been extended to October 1975. Canada's present subscription and quota in the IMF is \$1,100,000,000 (U.S.), of which 25 p.c. is payable in gold and the remainder in Canadian currency.

On Jan. 1, 1970, the first allocation of SDRs to the 104 countries participating in the Special Drawing Account took place. The 3,414,000,000 units of this new fiduciary reserve asset involved in this allocation represented the first instalment of a total of 9,500,000,000 SDRs to be created during the first three-year basic period ending Dec. 31, 1972. Considerable use was made of this new asset during 1970. Total transactions amounted to 672,000,000 units, with the General Account of the IMF acquiring about 290,000,000 units and participating countries the remainder. Among the latter, Canada accounted for almost 58,000,000 units, raising its total SDR holdings to a level 46 p.c. in excess of the 124,000,000 units allocated to Canada on Jan. 1, 1970. This was one of the highest percentage increases in SDR holdings during 1970 by any participating country. The Fund has 111 members. Canada has been represented on the Fund's Executive Board since its inception.

*World Bank Group.*—The World Bank Group, consisting of the International Bank for Reconstruction and Development or World Bank, the International Finance Corporation and the International Development Association, is by far the largest of the multilateral aid-giving institutions.

The *International Bank for Reconstruction and Development* or *World Bank*, like the International Monetary Fund, originated in the Bretton Woods Conference of 1944. Its early loans were made to assist in the postwar reconstruction of Europe but it has played an increasingly important role in the provision of financial assistance and economic advice to the less-developed countries.

By June 30, 1971, the Bank had made 783 loans totalling \$16,068,000,000 (U.S.). The resources available to the Bank for use in its lending operations are: (1) that portion of its subscribed capital which is paid in by governments and freely usable (\$2,384,431,000); (2) its retained income from operations (\$1,444,155,000); and (3) the funds it is able to raise by the sale of bonds to central banks and government agencies and on private capital markets. The World Bank's policy is to keep its lending rates as low as is compatible with the maintenance of its ability to borrow. The current lending rates are 7 p.c. and 7½ p.c. Maturity periods on loans usually range between 15 and 25 years. The level of the Bank's lending in the year ended June 30, 1971 was \$1,896,000,000. The greater part of the Bank's lending has financed so-called infrastructure projects which provide the framework supporting the rest of a country's economy but which generally do not attract private investors. About one third of the total loans has financed the development of electric power plants and transmission lines; another third has financed railways, roads and ports; and most of the remainder has been divided between industry and agriculture. In recent years, however, the Bank has been making loans for education and placing increasing emphasis on agriculture.

Canada's subscription to the World Bank is \$792,000,000 (U.S.) out of a total for all countries of \$23,871,000,000. Only 10 p.c. of each subscription is paid in, however, with the balance remaining as a guarantee against which the Bank is able to sell its own bonds in world capital markets. By selling such bonds and by selling loans from its portfolio to other investors, the World Bank augments its capital. As of June 30, 1971, the Bank had outstanding borrowings of \$5,424,162,000 (U.S.), mostly in the form of U.S. dollar bonds but also including issues denominated in Canadian dollars, Belgian francs, Deutsche marks, Italian lire, Netherlands guilders, British pounds sterling, Swedish kronor and Swiss francs. In all, the Bank has offered seven bond issues totalling \$135,000,000 (Cdn.) in the Canadian market. Maturities on these bonds ranged from one to 25 years and the interest rate from 3½ p.c. to 7 p.c.

The *International Finance Corporation* (IFC) was established in 1956 as an affiliate of the IBRD to assist less-developed member countries to promote the growth of the private

sector of their economies. IFC's principal objectives are to provide risk capital for productive private enterprises, in association with private investors and management; to encourage the development of local capital markets; and to stimulate the international flow of private capital. IFC makes investments in the form of share subscriptions and long-term loans, carries out standby and underwriting arrangements, and provides financial and technical assistance to privately controlled development finance companies. Of IFC's total subscribed capital of \$107,009,000 (U.S.), Canada provided \$3,600,000 (U.S.). In addition to its subscribed capital, IFC is able to finance its activities through loans from its parent institution, the World Bank. Total investments and underwriting commitments by IFC to June 1969 amounted to \$364,700,000 (U.S.). Commitments made during the year ended in June 1969 were \$92,900,000.

The *International Development Association* (IDA), also an affiliate of the IBRD, was established in 1960 to meet the situation of a growing number of less-developed countries whose need for, and ability to make use of, outside capital is greater than their ability to service conventional loans. Consequently, the terms of IDA development credits are designed to impose far less burden on the balance of payments of borrowing countries than conventional loans. Credits extended to June 1971 have each been for a term of 50 years, bearing no interest but with a service charge of  $\frac{3}{4}$  of 1 p.c. per annum. IDA secures its resources from governments in the form of interest-free subscriptions and contributions and, to a smaller extent, from a portion of World Bank profits. As of June 30, 1971, resources made available to the Association totalled approximately \$3,015,000,000 (U.S.), of which Canada contributed \$154,530,000 (U.S.). Credits extended by the Association totalled about \$3,340,000,000 (U.S.).

**International Atomic Energy Agency.**—Formed in 1957, the International Atomic Energy Agency (IAEA) is an autonomous international organization under the aegis of the UN. The Agency has been empowered by the UN to seek to accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world in a variety of ways. As of August 1971, membership consisted of 102 states. Because Canada has been designated as one of the members most advanced in nuclear technology, including the production of source materials, a Canadian representative has served on the IAEA Board of Governors since the inception of the Agency. Canada is the only non-nuclear weapon state to occupy a permanent seat on the Board of Governors.

Conferences and symposia, the dissemination of information and the provision of technical assistance are among the methods that the Agency adopts to carry out its functions. With the rapid expansion in the use of nuclear power, many of the Agency's activities are devoted to this field as well as to the use of isotopes in agriculture and medicine. Another significant role of the IAEA relates to the development and application of safeguards to ensure that nuclear materials supplied for peaceful purposes are not diverted to military uses. Under the Treaty for the Non-Proliferation of Nuclear Weapons (NPT), each non-nuclear weapon state which has adhered to the Treaty is bound to conclude an agreement with the IAEA before Mar. 5, 1972, providing for safeguards on its entire nuclear program. Agency inspectors are expected to be carrying out safeguards inspections in Canada in 1972 as well as in more than 60 other countries.

**International Law Commission.**—By Article 13(1) of the Charter of the United Nations, one of the purposes of the UN General Assembly is to encourage the progressive development of international law and its codification. In order to implement and to assist in this function, the International Law Commission was created by a General Assembly resolution dated Nov. 21, 1947. It is composed of 25 members who are elected in their individual capacity. They serve for terms of five years and, in general, represent the main forms of civilization and principal legal systems of the world. As of Dec. 31, 1971, the 25 countries whose nationals formed the International Law Commission were: Afghanistan, Algeria, Argentina, Brazil, Chile, Ecuador, Finland, France, Greece, Hungary, India, Iraq,



Israel, Italy, Japan, Madagascar, Mexico, the Netherlands, Nigeria, Senegal, the Union of Soviet Socialist Republics, the United Arab Republic, the United Kingdom, the United States of America and Yugoslavia. Canada's term expired in 1968.

#### **Subsection 4.—Canada and the Conference of the Committee on Disarmament**

"No single international activity . . . rates higher priority in the opinion of this Government than the pursuit of effective arms control and arms limitation agreements." These words, spoken by the Prime Minister of Canada in October 1969 during the Throne Speech Debate, clearly indicate the importance that is placed by the Canadian Government on working for a safer world through arms control and disarmament. Canada is an active member of the Conference of the Committee on Disarmament (CCD), the 26-nation United Nations negotiating body that meets in Geneva as successor to the Eighteen-Nation Disarmament Committee (ENDC). This Committee, of which the United States and the Soviet Union are co-chairmen, represents in microcosm the world-wide concern to stop the arms race. The CCD currently has before it the task of seeking agreements in such important areas of arms control as a comprehensive prohibition of nuclear weapons testing to include underground tests, and banning by international agreements of the research, development and production of chemical biological (bacteriological) weapons.

#### **Subsection 5.—Canada and the North Atlantic Treaty Organization**

During 1970, NATO continued its efforts to promote arms control and disarmament measures in Europe, and progress towards East-West political solutions. The defence problems of the Alliance were subjected to a searching review and NATO's newly initiated activities in the field of the environment were developed further.

At the meeting held at Rome on May 26 and 27, Ministers of the North Atlantic Alliance discussed means of promoting further improvement in East-West relations. One possibility was the idea of a large conference or series of conferences on European security and co-operation, as proposed by the Soviet Union and other Eastern European countries. Canada took the position that a conference at the right time and in the right circumstances would be most useful but that progress in individual East-West talks would be a good yardstick for determining when the time had come for multilateral discussions. Canada also urged the Alliance to make a clear and forthright offer to explore with the members of the Warsaw Pact how to start negotiations on balanced force reductions in Central Europe, including suggested guidelines for the reductions.

In both respects, the outcome of the Rome meeting was very satisfactory to Canada. The meeting agreed that the allied governments would be willing to enter into multilateral discussions to explore the possibility of a conference insofar as progress was recorded as a result of ongoing discussions, in particular on Germany and Berlin. On balanced force reductions, NATO's declaration explicitly invited interested states to hold exploratory talks, and suggested four specific considerations which the allies would put forward in such talks.

In October, Canada was the host at a two-day meeting of NATO's eight-member Nuclear Planning Group, held in Ottawa. Defence Ministers attending this meeting discussed the balance of strategic forces, refined the political guidelines for the initial defensive tactical use of nuclear weapons which they had adopted in 1969, and also agreed on political guidelines to cover the possible use of atomic demolition munitions in defence of the NATO area.

At a meeting of NATO Foreign and Defence Ministers held in Brussels in December, the member governments, with Canada's support, confirmed their readiness to hold multilateral talks on the holding of a conference on European security and co-operation, as soon as talks on Berlin had reached a satisfactory conclusion and insofar as other ongoing talks were proceeding satisfactorily. In addition, they renewed their invitation to hold exploratory

tory talks on balanced force reductions in Central Europe, and indicated a readiness to examine different aspects of the question, including the idea of reductions in foreign forces which had been publicly advanced by Warsaw Pact countries during the summer.

Ministers at Brussels endorsed a recommendation that allied governments should achieve, by 1975 if possible, the elimination of international discharges of oil into the sea. This and other accomplishments of NATO's newly established Committee on the Challenges of Modern Society (CCMS) were welcomed as evidence that the allies were effectively combining their resources to stimulate action on environmental problems. Canada undertook during the year to lead an international study under CCMS auspices, in conjunction with France, Belgium and the United States, on inland water pollution, and also agreed to assist in an equivalent study on coastal water pollution.

At the Brussels meeting, Defence Ministers of the Alliance approved the conclusions of a comprehensive study of the defence problems which NATO will face in the 1970s. They underlined the special military and political role of North American forces in Europe, and welcomed the decision of European member nations to make an increased effort to strengthen the Alliance's defence capability.

**Canadian Contribution to NATO.**—During 1970, Canada implemented its decision, announced in 1969, to conduct a planned and phased reduction of its forces in Europe, against the background of the change that had taken place in the ability of the western European countries to provide necessary conventional defence forces and armaments. The land element of the Canadian Forces in Europe was co-located with the air element in Southern Germany, and the combined strength of the two was brought to 5,000 instead of the previous total of 10,000.

Canadian naval forces continued to be earmarked for assignment to the Supreme Allied Commander Atlantic (SACLANT), for the defence of the North Atlantic Region. Canada also participated with the United States in the defence of North America, which is part of the North Atlantic Treaty area, through the provision of sea, land and air elements. The latter are assigned to the operational control of the North American Air Defence Command (NORAD).

### Subsection 6.—Canada and the United States

Relations with the United States are of vital importance to Canada and constitute what is in many ways a unique experiment in international relations. Geography has made the two countries neighbours, community of interest has made them friends, and the demographic realities and economic patterns of today contribute to the conception of partnership which best characterizes the relationship between them. As an important example, Canada sells to the United States some three quarters of all its exports and buys almost one quarter of that country's exports, in an exchange of goods that now totals in excess of \$20,000,000,000 a year. Co-operation in bilateral and multilateral affairs has marked this relationship in the past and experience has demonstrated a willingness in both countries to maintain and foster a spirit of sympathy and understanding in dealing with one another.

As indicated in the previous Sections and Subsections of this Chapter, both countries are active members of the United Nations and its many specialized agencies and both participate actively in the North Atlantic Treaty Organization (NATO), the General Agreement on Tariffs and Trade (GATT), the Organization for Economic Co-operation and Development (OECD), and other important international organizations. There are also many bilateral bodies that facilitate Canada-United States co-operation. The Ministerial Committee on Trade and Economic Affairs annually brings together members of the Cabinet in both countries for extensive discussions on a wide range of problems of bilateral and international interest. The Permanent Joint Board on Defence and the International Joint Commission are forums, respectively, for the discussion of North American defence and problems related to boundary waters, and many joint committees

and agencies deal with other specialized subjects. But perhaps the most important factor in reinforcing the traditional friendship of the two countries is the continual intermingling of their peoples as private individuals across the shared border.

### **Subsection 7.—Canada and the Commonwealth Caribbean**

The present close relationship between Canada and the Commonwealth Caribbean has resulted as a logical progression from the historical ties existing between the two areas. Trading relations over several centuries have been close, and have been supplemented by considerable Canadian commercial interests and investment in the area. Canada's common association in the Commonwealth has also contributed to understanding through mutually shared traditions, institutions and values, resulting in increased communication between the two areas. In the past few years this communication has been emphasized through the large movement of people between the West Indies and Canada as tourists, students, businessmen and immigrants.

The current phase of Canadian relations with the Commonwealth Caribbean dates from the Commonwealth Caribbean/Canada Conference held in Ottawa in July 1966, which established a broad framework of guidelines along which relations between the two areas could develop. Considerable progress has been made in realizing the recommendations agreed to at the Conference. As part of the continuing process of consultation and review of relations, a special Canadian Mission to the Commonwealth Caribbean in the fall of 1970 visited 13 countries and territories. Specific discussions on the sugar rebate and the Agricultural Development Fund took place as well as talks on a wide range of matters of bilateral interest.

At present (September 1971) there is an estimated \$450,000,000 to \$550,000,000 in Canadian investment in the region. During 1970, Canadian exports reached \$134,100,000 as compared with \$113,000,000 in 1969, and imports totalled \$77,900,000 as compared with \$108,700,000. In the fiscal years ended Mar. 31, 1967 to 1971, more than \$100,000,000 was allocated to the Commonwealth Caribbean under the Canadian development assistance program; \$24,000,000 in 1970-71 alone. More than 3,000 Canadians live as permanent residents in the region and about 125,000 visit the islands annually. During 1970, nearly 14,000 West Indians immigrated to Canada. There are Canadian High Commissions in Jamaica, Trinidad and Tobago, and Guyana, and these three countries, as well as Barbados, maintain High Commissions in Ottawa. The Leeward and Windward Islands have a Trade Commissioner in Montreal.

### **Subsection 8.—Canada and Latin America**

Canada has formal diplomatic relations with all 20 Latin American republics and maintains 11 resident diplomatic missions in the area. Canada's relations with these countries have increased substantially during the past few years.

Canada has for some years been a member of several inter-American institutions linked with the Organization of American States (OAS): the Pan American Institute of Geography and History, the Inter-American Statistical Institute, the Inter-American Centre for Tax Administrators, the Centre for Latin American Monetary Studies and, recently, the Pan-American Health Organization. Canada also continues its membership in the Postal Union of the Americas and Spain, a body closely linked to the OAS although not part of it.

In April 1971, the Canadian Observer Delegation to the General Assembly of the OAS in San Jose, California, announced the Government's desire to establish closer ties with the OAS through the establishment of a Permanent Observer Mission. The General Assembly passed a resolution approving in principle the new status of Permanent Observer, and entrusted the Permanent Council of the OAS with the task of determining the timing and criteria for its implementation. In addition to this initiative, Canada has stated its intention to seek full membership in the Inter-American Development Bank, and negotiations



have begun in that connection. Moreover, Canada intends to become a member of the Inter-American Institute of Agricultural Sciences and of two other inter-American organizations as soon as the necessary formalities can be completed. It should also be mentioned that Canada has been an active member of the United Nations Economic Commission for Latin America since 1961. Lastly, Canada has inaugurated and is developing a special program of technical assistance in Latin American countries.

Canada has been officially represented at numerous meetings and conferences concerned with Latin America and inter-American affairs. Canadian observer groups have regularly attended the annual meetings of the Inter-American Economic and Social Council, the Inter-American Cultural Council and the Inter-American Committee for the Alliance for Progress, all of which are organs of the OAS. Canadian observers have also been present at meetings of the Inter-American Children's Institute and the Inter-American Indian Institute. As well, Canadian observer delegations have attended conferences of the Ministers of Education on Economic Planning for Latin America, meetings of the Board of Governors of the Inter-American Development Bank, the Inter-American Conference of Ministers of Labour, and the annual meetings of the Inter-American Tropical Tuna Commission. In addition, Canada acted as host for the American Regional Conference of the International Labour Organization held in Ottawa in September 1966, and for the UNESCO Conference of National Commissions in the Western Hemisphere held in Ottawa in August 1971.

In December 1964, the Canadian Government signed an agreement with the Inter-American Development Bank under which Canada agreed to make available \$10,000,000 (Cdn.) in development loan funds for use in financing development projects in Latin America. This initial commitment was followed in each of the six succeeding years by additional commitments of an equal amount, bringing the total Canadian development loan funds made available to Latin America to \$70,000,000 (Cdn.). As at August 1971, some 20 loans totalling approximately that amount had been approved for financing development projects in the area.

Although the volume of Canadian trade with Latin America is still a small part of total Canadian trade, it has more than quadrupled since 1946. In 1970, Canadian exports to this area exceeded imports for the first time. Argentina, Brazil, Cuba, Mexico and Venezuela rank among the top 20 Canadian export markets. The Canadian Government has directly facilitated Canadian exports to Latin America and indirectly assisted Latin American economic development through the provision of long-term credit under the Export Development Act. In terms of signed agreements, these credits in mid-1971 totalled almost \$300,000,000 (Cdn.).

#### **Subsection 9.—Canada and Europe, Africa, the Middle East, the Far East and the Asian Development Bank**

**Canada and Europe.**—While Canadian interest in most areas of the globe is increasing, Canada's relations with Europe remain of special importance. They are deeply rooted in Canada's origins, spring from the common cultural heritage which is shared with Britain and France and also reflect the ties with other European countries from which Canada's population is derived. They have been strengthened by Canada's substantial participation, on European soil, in two World Wars and by Canada's continuing stake in European security.

Canada's relations with Western Europe have developed steadily under the impulse of major Canadian interests in the area. These countries have long been major trading partners for Canada and its chief source of immigrants, and exchanges with them are having an increasingly important effect on Canada's cultural life and the development of its bicultural policy. Moreover, as a result of its growing prosperity and unity, Western Europe is likely to assume a greater importance for Canada because of the influence it wields, the possibility of fruitful co-operation it offers in many fields, and the element of

balance it can provide in Canada's external relations. Canada maintains close and extensive bilateral relations with Britain and France in particular, as well as with most other western European countries, and has resident diplomatic missions in almost all of them. As indicated in preceding Subsections, Canada is also, along with a number of western European countries, an active member of NATO and the OECD, as well as of wider international associations such as the General Agreement on Tariffs and Trade (GATT). Canada follows with great interest the evolution of the European Economic Community since European multilateral co-operation, particularly with British accession to the EEC, tends to add a new element to the Canadian-European relationship.

Canada has a substantial interest in improving relations with the communist countries of Eastern Europe, not only because of the benefits resulting from increased trade, scientific and technological co-operation and cultural exchanges with those countries but also because a better relationship can contribute to détente in Europe. The prospects for such co-operation with the Soviet Union are particularly good and were considerably enhanced by the Prime Minister's visit to the Soviet Union. The improved climate of East-West relations and the accompanying growth in East-West contacts and exchanges have improved the practical opportunities for Canada to pursue mutually advantageous relations with other eastern European countries as well. Canada has resident diplomatic missions in Moscow, Prague, Warsaw and Belgrade and maintains diplomatic relations with Hungary, Romania and Bulgaria through non-resident ambassadors.

**Canada and Africa.**—Canada in the past had a certain latent interest in Africa through the missionary and commercial activities of Canadians. Formal relations have evolved rapidly over the past 10 years, paralleling the accession to independence of the majority of former colonial territories. The increasing voice of these newly independent states in world affairs, the recognition of their development problems and the importance of the political issues affecting the whole African Continent have sparked this evolution.

Direct relations were first established with former British colonies as they became independent within the Commonwealth. Increasing contacts and diplomatic relations with the newly independent French-speaking African states soon followed in recognition of the bicultural outlook of this country and the important role played by these countries in African affairs. Canada now has diplomatic relations with almost all the independent African states and there are resident Canadian missions in 13 countries on that Continent. Coupled with the development of bilateral diplomatic and commercial relations has been the expansion of a significant program of Canadian aid to Africa. This program, with its English and French components, directed more than \$120,000,000 of aid funds to the African Continent in 1970-71.

**Canada and the Middle East.**—For the past quarter-century, the Middle East has been a focus of tension and conflict. During this period, Canada has participated in United Nations efforts to promote calm and stability in the area. It has also contributed substantially to measures to alleviate want among the victims of recurring hostilities.

Canada provided observers to the United Nations Truce Supervision Organization (UNTSO) and was closely associated with the formation of the United Nations Emergency Force (UNEF). Canadian troops served with UNEF in Gaza and Sinai from its inception until its withdrawal in May 1967. Canadian officers continue to serve with UNTSO, which is supervising the Arab-Israeli cease-fire.

Since the establishment of the United Nations Relief and Works Agency for Palestine refugees (UNRWA), Canada has been one of the leading contributors to that Agency. Canadian Government contributions have taken the form of cash, food and other supplies aimed at relieving human suffering in the Middle East. In emergency situations it has provided various forms of assistance through the International Red Cross.



The recently completed Akonolinga Bridge over the Nyong River in Cameroon, built with Canadian assistance.

**Canada and the Far East.**—For many years Canada has had important links, both official and private, with East and Southeast Asia, but over the past decade Canadians have become steadily more aware of their position as a Pacific as well as an Atlantic nation. With the development of modern transport and communications, the Pacific Ocean has ceased to be a barrier and, as a result, contacts with the countries and peoples of Asia are increasing rapidly in number and variety. Many of these contacts are based on the growing volume of trade and other economic activity, including tourism. Japan, for example, is Canada's third largest trading partner and bilateral trade between the two countries amounted in 1970 to almost \$1,375,000,000. The links between Canada and Japan have been greatly strengthened by the prominent role of Canada in Japan's 1970 World Exposition at Osaka and by frequent high-level visits and consultations between the two countries.

The establishment of diplomatic relations between Canada and the People's Republic of China was announced in Parliament on Oct. 13, 1970, and ambassadors were exchanged within a few months. In the course of 1971, Canada's Minister of Industry, Trade and Commerce led a high-level economic mission to Peking; a Canadian university group and several Canadian journalists travelled through China, each making a contribution to Canada's policy of further developing relations with China in all spheres.

As a member of the International Commissions for Supervision and Control in Indochina, Canada continues to maintain delegations in Laos and Viet-Nam. The Canadian delegation was withdrawn from Cambodia at the end of 1969 when the International Commissions there adjourned *sine die* at the request of the Cambodian Government.

Canada's relations with the other countries of the Far East are also of increasing importance, a fact reflected in the Pacific Policy Review undertaken by the Government early in 1970. The long-term objectives of regional co-operation and development are fundamental to the future growth and stability of the Pacific region and particularly of



Southeast Asia. Canada's interest in the area has been expressed through its participation in the Colombo Plan, its membership in the Asian Development Bank and its status as an observer in the Economic Commission for Asian and the Far East (ECAFE). Canada maintains missions in the capitals of most southeast Asian countries. The Philippines is Canada's largest trading partner in the area and Canada has a number of commercial dealings with Malaysia and Singapore in addition to economic and technical assistance programs. During his visit to Indonesia in 1971, the Prime Minister expressed Canada's intention to increase substantially its economic assistance to these countries.

The Canadian Government has expressed its readiness to contribute to international programs for economic rehabilitation of Viet-Nam and the other countries in Indochina after the end of hostilities and, as a member of the Asian Development Bank, is contributing to the Bank's technical assistance program and its special fund. Canada also continues to be a substantial contributor to United Nations agencies concerned with the economic development of Asian countries.

**Canada and the Asian Development Bank.**—Canada is a member of the Asian Development Bank, a regional development agency established in 1966 with Articles of Agreement patterned broadly after those of the World Bank and the other international financial institutions (see p. 190). The Bank's subscribed capital stock is \$1,005,380,000 (U.S.), of which one half was paid in over the five-year period 1966-70. The balance of member-country subscriptions will remain as a callable guarantee against which the Bank may sell its bonds on world capital markets. Asian regional countries, including Japan, Australia and New Zealand, have subscribed \$625,380,000 (U.S.) and non-regional countries have subscribed the remaining \$380,000,000 (U.S.). Canada's subscription is \$25,000,000 (U.S.), of which \$12,500,000 (U.S.) has been paid toward the paid-in portion.

For its ordinary operations, to be financed from paid-in equity capital or any resources raised on world capital markets, the Bank expects to follow a pattern similar to that of the World Bank and to lend at rates of interest related to the rate which the Bank itself would have to pay on any bond issues. The present lending rate (October 1971) has been set at  $7\frac{1}{2}$  p.c. As of September 1971, the Bank had made available 47 loans totalling \$366,635,000 (U.S.) from these ordinary resources to countries of the region.

The Bank also established Special Funds which may be provided to member countries on more flexible terms. Such special operations are financed by voluntary contributions and kept separate and distinct from the Bank's ordinary capital resources. Canada has agreed to make available \$25,000,000 (U.S.) over a five-year period for the Bank's special operations. As of September 1971, the Bank had supplied 23 loans totalling \$79,408,000 (U.S.) from these Special Funds to Afghanistan, Ceylon, Indonesia, Khymer Republic, Laos, Malaysia, Nepal, Philippines, Singapore, Viet-Nam and Western Samoa.

#### **Subsection 10.—Canada and the Organization for Economic Co-operation and Development**

The Organization for Economic Co-operation and Development (OECD) was established in September 1961, as successor to the Organization for European Economic Co-operation (OEEC), which had been founded in 1948 by the countries of Western Europe to facilitate the reconstruction of their war-shattered economies. With the establishment of the OECD, Canada and the United States and later Japan (May 1964) and Australia (June 1971) joined with the countries of Western Europe to form what is today a major, intergovernmental forum for consultation and co-operation among the advanced industrialized nations in virtually every major field of economic activity. At present, 23 countries are full members of the Organization, while Yugoslavia has a special status entitling it to participate in certain activities. The Organization's headquarters are in Paris.

The aim of the OECD is to facilitate the formulation of policy approaches which are conducive to the balanced economic growth and social progress of both member and non-member countries. The Organization provides an instrument for assembling and examining knowledge relevant to policy-making and also a forum, meeting the year round, for the exchange and analysis of ideas and experiences from all the member countries. (Recent examples of this consultative process are the report on Canadian science policy issued in December 1969, one of a series of reviews of national science policy of OECD member countries, and the attention given by the Organization and its members in the past year [1970-71] to the problems of inflation.)

The Organization plays a significant role in the harmonization of international economic and financial policy and constitutes the main forum for consultations among developed countries on development assistance questions. The original focus of the OECD upon more traditional economic, trade and development matters has altered and new activities have been undertaken in the areas of agriculture, the environment, industry, science and technology, and manpower policy. This broader orientation places increasing emphasis upon the qualitative, as well as the quantitative, aspects of economic growth and is most recently seen in the Organization's work on the problems of environment and welfare in the context of economic policy. At the first Ministerial Council in 1961, member countries approved a growth target of 50 p.c. for the decade to 1970; that goal has been considerably exceeded and a new growth target will be set for the coming decade.

The OECD brings together government officials as well as representatives of private business, labour unions, universities and other non-governmental bodies in both deliberative and consultative capacities, and provides for international liaison among such groups. Within Canada, liaison has been established with the business community through the Canadian Business and Industry Advisory Committee, which was established in 1962 and comprises representatives of the Canadian Chamber of Commerce, the Canadian Council of the International Chamber of Commerce and the Canadian Manufacturers' Association. Arrangements also exist for consultation with Canadian labour organizations, universities and other non-governmental bodies. Representatives of provincial governments frequently attend OECD meetings when subjects of particular interest to the provinces are being discussed.

### Subsection 11.—Canadian External Aid Programs

**The Colombo Plan.**—The Colombo Plan for Co-operative Economic Development in South and Southeast Asia was conceived at the Commonwealth Meeting of Foreign Ministers held at Colombo, Ceylon, in January 1950. Although the Plan was initiated by Commonwealth governments, it is not exclusively a Commonwealth program. It is designed to assist in the economic development and the raising of living standards of all countries and territories in the general area of South and Southeast Asia. Its membership includes Afghanistan, Australia, Bhutan, Britain, Burma, Cambodia, Canada, Ceylon, India, Indonesia, Iran, Japan, Republic of Korea, Laos, Malaysia, Nepal, New Zealand, Pakistan, the Philippines, Singapore, Thailand, Viet-Nam and the United States.

The Colombo Plan Consultative Committee is the top policy-making body and consists of Ministers of the member governments. The Committee meets each year to survey the Plan's progress, assess needs, and examine methods for filling in the gaps in resources and speeding up the pace of development. The Committee met in Victoria, B.C., in October 1969, and it was agreed at that time to streamline committee structure and procedure and to extend the life of the Plan to 1976. The most recent meeting was in Manila in the Philippines, in February 1971. As a consultative body, the Committee makes no collective policy decisions binding on member countries; a Council for Technical Co-operation, on which Canada is represented, meets regularly in Ceylon to develop the technical co-operation

program of the Plan. The Colombo Plan Bureau in Ceylon services the Council, records all technical assistance given in the area, develops a program of intra-regional training and is responsible for the Plan's information program.

From the inception of the Plan in 1950 through March 1971, Canada made available a total of \$1,371,000,000 in aid for capital and technical assistance projects in South and Southeast Asia and a further \$136,000,000 as the initial allocation for 1971-72. The largest contributions were made to Ceylon, India, Malaysia and Pakistan and, following the Canadian Government's Foreign Policy Review of 1970, Indonesia also became a major recipient of bilateral assistance. The Canadian contribution to Colombo Plan countries consists primarily of direct assistance to various development projects, including equipment for multi-purpose irrigation and hydro-electric projects, power-generating plants, fisheries projects, resource surveys, hospital equipment and books. It has also included grants for foodstuffs, through the internal sale of which recipient governments have been able to raise funds to meet local costs of economic development projects, and development loans for raw materials, fertilizers and certain commodities.

Through the Technical Assistance Program, more than 5,000 persons from all countries in the area have come to Canada under Federal Government auspices for training in a variety of fields, the major ones being public administration and finance, agriculture, co-operatives, engineering, mining and geology, statistics, health education and social welfare. More than 600 Canadian experts have been sent abroad for service in Colombo Plan countries in such fields as fisheries, forestry, agriculture, engineering, mining and prospecting, co-operatives, public administration, education and vocational training, and public health. Other Canadians were employed on aerial resources-survey teams and on the installation and operation of capital equipment. As of January 1971, 29 Canadian advisers and 31 Canadian educators were serving under CIDA contracts in the region, and 586 trainees from Colombo Plan countries were in Canada under government auspices.

**Commonwealth Caribbean Program.**—In 1958, when the Federation of the West Indies was being formed, Canada undertook a five-year \$10,000,000-program of economic and technical assistance. Following the dissolution of the Federation in 1962, it was decided to continue providing assistance to its component territories—Jamaica, Trinidad and Tobago, Barbados, Guyana, British Honduras and the Leeward and Windward Islands—and, up to March 1971, \$128,730,000 in loans and grants had been made available to the area, with initial allocations for 1971-72 being a further \$26,600,000.

Under this program the area has received more Canadian development assistance per capita than any other region of the world. Projects have included bridges and water systems in Jamaica, dairy cattle development and rural electrification for Trinidad and Tobago, a deep-water wharf at St. Vincent, buildings on several islands for the University of the West Indies, improvements to a number of airports, and construction of many schools throughout the region. Assistance under a five-year program for development in the Leeward and Windward Islands, begun in 1967, is concentrated in the fields of education, airports, water supply improvement and agriculture.

A substantial amount of technical assistance has also been given. In January 1971 there were 359 trainees in Canada from the Commonwealth Caribbean, the fields of study including agriculture, engineering, fisheries, forestry, medicine and public administration. In addition, 129 Canadian teachers and advisers were serving in the Commonwealth Caribbean.

**Special Commonwealth Africa Assistance Plan.**—Canadian assistance to Commonwealth Africa began in 1960 through the Special Commonwealth Africa Assistance Plan, which arose from discussions at that year's meeting of Commonwealth Prime Ministers. Through the past decade the program has grown steadily from an initial concentration on high-priority technical and educational assistance to include a variety of capital projects and pre-investment surveys, while the original emphasis on West Africa has been



balanced by projects in energy, transportation, communications, agriculture and economic planning in the developing countries of eastern and southern Africa.

From 1960 up to March 1971, Canada made available a total of \$179,380,000 for bilateral development programs in Commonwealth Africa. The initial allocation for 1971-72 is \$35,800,000, with large programs under way in Ghana, Nigeria and Tanzania. Technical assistance continues to receive major emphasis; in January 1971, 301 Canadian advisers and educators were serving in Commonwealth Africa under CIDA contracts, while 424 trainees were in Canada.

Significant projects include the Accra Trades Training Centre and Volta River hydro-electric program in Ghana, the Benin City technical school and telephone equipment in Nigeria, power transmission, road and resource surveys, and economic advisers in Tanzania, resource surveys in Kenya, dairy and livestock improvement in Uganda, and technical/vocational education in Zambia. Locomotives have been provided recently to several countries through CIDA development loans, and an important power-generating project has begun to assist in the development of Botswana's mineral resources.

**Commonwealth Scholarship and Fellowship Plan.**—The proposal to establish a Commonwealth Scholarship and Fellowship Plan was made at the Trade and Economic Conference held at Montreal in September 1958. The conference envisaged a program of 1,000 university scholarships, of which Britain undertook to provide one half and Canada one quarter. This Plan was designed to enrich the intellectual life of each country of the Commonwealth by enabling an increased number of its brighter students to share in the wide range of educational resources available throughout the Commonwealth and thus promote the equality of educational opportunity at the highest level. The Association of Universities and Colleges of Canada took over administration of the Plan in 1969 although funds continue to be provided by the Canadian International Development Agency. The number of students on award in January 1971 was 229, and actual expenditures in 1969-70 were \$1,242,608.

In 1965, Research and Visiting Fellowships were introduced as part of the Canadian contribution to this Plan to enable senior educationists from other Commonwealth countries to visit Canadian universities and other educational institutions on invitation to carry out investigations, study or research in their particular field.

**Commonwealth Fund for Technical Co-operation.**—This major venture in multilateral aid to Commonwealth countries was established on Apr. 1, 1971 following a January conference of Commonwealth heads of government, with Canada and the United Kingdom as major contributors. The goal is to provide advisory services in fields such as economic planning, and to organize the system of "third country" training under which students will be enabled to attend institutions in other parts of the developing Commonwealth. Canada offered to contribute annually the lesser of 40 p.c. of the total financial contributions or \$350,000, in the initial phase.

**Francophone Africa Assistance Program.**—Canadian assistance to the French-speaking countries of Africa began modestly in 1961, with emphasis on the provision of Canadian teachers, but has grown rapidly in recent years following the 1968 visit of a special Canadian Government mission which examined development needs and recommended fields in which help could be offered. Today, half the Canadian teachers serving overseas through contracts with the Canadian International Development Agency are in Francophone Africa, and many significant projects are under way.

The total amount made available for assistance to the 21 countries of Francophone Africa up to March 1969 was \$56,986,600. Allocations for 1969-70 were \$32,000,000, for 1970-71, \$46,780,000 (plus a special allocation of \$17,440,000 to cover certain major projects

in Tunisia and Niger), and for 1971-72, \$50,780,000. In January 1971, there were 63 Canadian advisers and 408 teachers serving in Francophone Africa, and 416 trainees were studying in Canada. About 1,400 students came to Canada from French-speaking Africa in 1970 under CIDA sponsorship.

Important projects include the provision of food to Algeria, Morocco and Tunisia, schools in Senegal, regional development schemes in Tunisia and Morocco, a public health program in Cameroon, forestry assistance in Congo-Kinshasa, the "Unity Road" highway in Niger, and rural electrification in Ivory Coast.

**Latin American Program.**—Canadian assistance to Latin America began in December 1964, when the Canadian Government concluded an agreement with the Inter-American Development Bank (IADB) by which Canada allocated \$10,000,000 in "soft" development loan funds for use in high-priority economic, technical and educational projects in Latin America. Up to Mar. 31, 1971, Canada had allocated \$60,000,000 to the IADB. Further funds have been allocated for the year 1971-72. Under the terms of the agreement, the IADB selects and processes proposed loan projects before submitting those considered suitable to the Canadian Government for its approval.

With the approval by September 1971 of some 20 loan agreements, all funds have been committed. Of these loans, half are for pre-investment studies by Canadian experts to determine the economic and technical feasibility of potential projects. Two major loans were made to Brazil. One is for the building of an electric power project which will take four years to complete; Canadian engineering consultants will be retained to advise on the extension and improvement of the electrical distribution system of the region. The other, which will also employ Canadian consultants, is a study to determine the feasibility of building South America's first airport for supersonic and jumbo jets. A loan to Colombia will go toward the completion of one of the largest hydro-electric projects on the continent on the Upper Anchicaya River.

Following a 1968 ministerial mission to Latin America, a program of bilateral assistance was launched to bring country-to-country technical assistance in Latin America to a similar stage as in other regions. The new program, being developed in consultation with multilateral and private organizations already at work in the area, will emphasize projects in agriculture, forestry, fisheries, education and community development, to help create jobs and spread the benefits of change over a wide section of the public. The 1971-72 allocation for country-to-country technical assistance is approximately \$10,000,000.

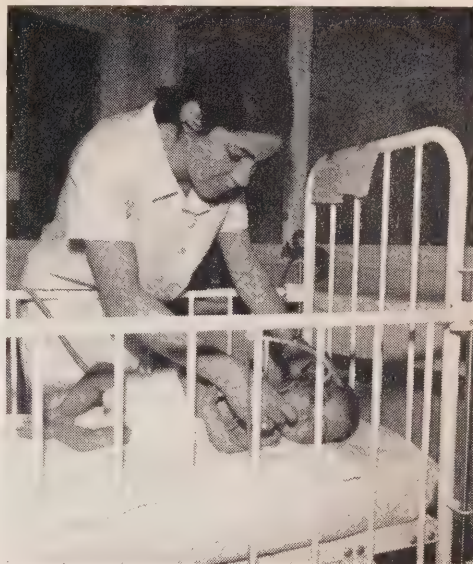
**Co-operation with the United Nations and Its Specialized Agencies, and with other International Aid Programs.**—In addition to the annual contributions made to the United Nations Development Program, which encompasses all UN programs of technical assistance, Canada arranges training programs in this country for individuals studying under the auspices of the different specialized agencies. In 1970, 105 training places were made available under Plan "O" of the United Nations. Canada also assists in the recruitment of Canadians for service with the specialized agencies either at agency headquarters or in developing countries on specific technical assistance assignments. Canadian allocations to multilateral organizations—including UN agencies, the World Bank, and regional development banks—amounted to \$66,890,000 for 1970-71 and will exceed \$100,000,000 in 1971-72, for a total since 1951 of about \$580,000,000.

**The Canadian International Development Agency.**—Since 1960, the operation and administration of Canada's external assistance programs have been the responsibility of the External Aid Office, renamed in 1968 the Canadian International Development Agency, under the direction of a president. Canada's allocations for external aid rose from \$338,700,000 in 1969-70 to \$383,700,000 in 1970-71. The initial allocation for 1971-72 is \$426,400,000, of which \$101,160,000 is for multilateral programs such as support for United Nations agencies and development banks, \$85,000,000 is for food aid, \$43,000,000 is

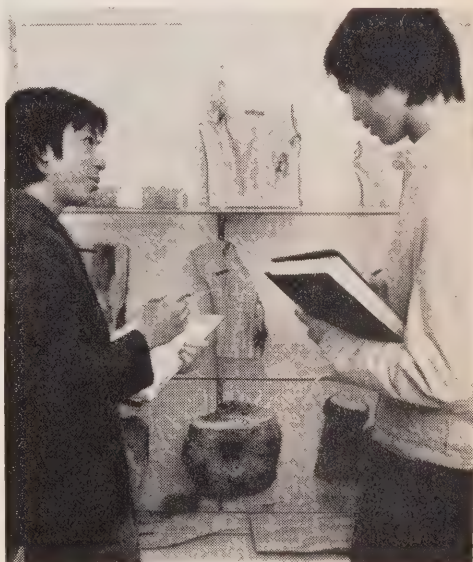
for technical assistance, and \$179,650,000 is for bilateral economic aid. Canadian bilateral aid continues to be used mainly to provide Canadian goods and services to the less-developed countries, although the minimum Canadian content for goods supplied has been reduced from 80 p.c. to 66 $\frac{2}{3}$  p.c., permitting aid funds to be used for a much wider range of Canadian goods under competitive conditions.

During 1970, there were about 2,600 students and trainees from developing countries studying in Canada under CIDA auspices. About 850 Canadian educators are working overseas through CIDA programs, mainly to improve indigenous educational capabilities. Under the technical assistance program, CIDA has some 250 experts abroad carrying out a variety of professional and technical jobs. CIDA in 1969 launched a program to assist voluntary and non-government agencies to increase the scale and scope of their own contributions to international development. Another important addition to CIDA's activities during 1969 was the establishment of the Business and Industry Division. In conjunction with the Department of Industry, Trade and Commerce, the Agency will help Canadian firms to identify suitable opportunities for direct participation in the less-developed countries and use the various programs of special assistance available to them.

**International Development Research Centre of Canada.**—In May 1970, Royal Assent was given to legislation authorizing the establishment of an International Development Research Centre. Canadian-financed but international in character, the Centre will bring together experts from both the developed and the developing countries and provide them with the facilities and resources to conduct research into the problems of the economically under-developed regions of the world and into the means for applying scientific and technical knowledge to the advancement of those regions.



*A member of the Canadian medical team serving in Tunisia's Pediatric Institute tending one of her small patients.*



*Two students from Laos studying forestry engineering at Université Laval in Quebec. There are more than 1,800 trainees from 70 countries studying in Canada under the sponsorship of the Canadian International Development Agency.*



# CHAPTER III.—POPULATION

## CONSPECTUS

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*The interpretation of the symbols used in the tables throughout the Year Book will be found on p. vii of this volume.*

## Section 1.—Census of Population

This Section normally presents a limited summary of the voluminous data on population recorded by the Census of Canada. Such summary data resulting from the 1971 Census—Canada's eleventh decennial census since Confederation—as is available at the time of going to press with this publication (March 1972) will be found in Appendix II. Detailed census statistics and analyses are being published, as they become available, in census bulletins which are obtainable from Statistics Canada, Ottawa K1A 0T7. A list of these publications, with their prices and an order form, is obtainable on request. Reports are being issued in four main series, as follows:—

### Advance Series

Reports in the Advance Series provide summary information on basic topics for which there is wide demand and are published at earlier dates than the regular series of volume reports. They cover final population counts for various types of geographical areas and broad subject-matter classifications on the most frequently requested topics such as age, language, ethnic groups, etc. There are approximately 22 reports in the Advance Series, nine relating to data collected on a 100-p.c. basis and 13 relating to sample data.

### Volume Series

Reports in the Volume Series represent the main results of the 1971 Census and may be ordered singly or in volume sets. They are prepared in such a way that they may be combined within hard-covered binders to form the complete subject matter of each Volume or Volume Part. It is expected that there will be close to 200 individual reports in the complete Series to form over 20 Volume Parts.

### Census Tracts

Basic population and housing data will be issued for each of the larger cities (or metropolitan areas) according to census tracts (i.e., intra-city statistical areas of approximate uniformity in population size and composition). Some 29 cities are included in the census-tract program: St. John's, Nfld.; Halifax, N.S.; Saint John, N.B.; Quebec, Montreal, Trois-Rivières and Sherbrooke, Que.; Ottawa, Toronto, Hamilton, London, Windsor, Oshawa, Sudbury, Kingston, Kitchener, Brantford, Niagara-St. Catharines, Peterborough, Sarnia, Sault Ste. Marie and Thunder Bay, Ont.; Winnipeg, Man.; Regina and Saskatoon, Sask.; Calgary and Edmonton, Alta.; and Vancouver and Victoria, B.C.

**Special Series**

Special Series reports contain some basic materials not included in the regular Volume Series and which relate for the most part to more detailed geographical areas or represent data of more specialized interest. Also, it is an open-ended series to which later reports may be added as needs arise.

**Section 2.—Intercensal Population Estimates**

Estimates of the total population of Canada and of the population of each province as of June 1 are prepared and appear about Sept. 1 of each intercensal year. Such estimates have many uses. They are necessary to the calculation of costs of certain economic and social legislation. Business, educational and welfare organizations utilize population estimates in planning future development. They constitute a base for vital statistics rates, per capita figures of production and trade, and other analyses. They also have been found useful for estimating labour force and other population characteristics of data collected in sample surveys.

Estimates of population begin with the preceding census counts; births and immigration are added, deaths and emigration are subtracted and, for provincial estimates, inter-provincial migration taken into account. When figures become available from a new census, the estimates for the intervening years are adjusted to the newly recorded population figures. Thus, the estimates prepared for the years 1967 to 1970, based on the 1966 Census, will be adjusted to the populations recorded by the 1971 Census. Such revisions are expected to be available in the spring of 1972 and may be secured from the Census Division of Statistics Canada on request.

**Section 3.—The Native Peoples of Canada\*****The Indians**

The 244,023 persons registered as Indians by the Department of Indian Affairs and Northern Development are persons who are entitled to be so registered in accordance with the provisions of the Indian Act. They are grouped for the most part into 558 bands and occupy or have access to 2,200 reserves having a combined area of 6,231,174 acres, distributed among the provinces as shown in Table 1. The 29 Indian bands in the Yukon and Northwest Territories are located in 59 settlements that have not been formally designated as reserves, and no permanent residents of Newfoundland are registered under the Indian Act.

\* Prepared by the Indian-Eskimo Bureau, Department of Indian Affairs and Northern Development, Ottawa.

**1.—Number of Indian Bands, Reserves and Settlements, and Area of Lands in which Bands have a Recorded Interest, by Province, as at Mar. 31, 1971**

Province or Territory	Bands	Reserves	Approximate Area <sup>1</sup>	Settlements
	No.	No.	acres	No.
Prince Edward Island.....	1	4	1,646	—
Nova Scotia.....	12	38	27,158	—
New Brunswick.....	15	22	37,803	—
Quebec.....	39	26	180,981	13
Ontario.....	110	165	1,586,027	5
Manitoba.....	54	99	529,405	—
Saskatchewan.....	67	133	1,389,087	—
Alberta.....	41	91	1,621,538	8
British Columbia.....	190	1,622	857,529	—
Yukon Territory.....	13	—	—	27
Northwest Territories.....	16	—	—	32
<b>Totals.....</b>	<b>558</b>	<b>2,200</b>	<b>6,231,174</b>	<b>85</b>

<sup>1</sup> Approximate; mainly based on unverified land data. Includes land surrendered for sale but not sold and land surrendered for lease but excludes acreage of Indian settlements as these are not reserves within the meaning of the Indian Act.

## 2.—Indian Population, by Province, Selected Years 1949-69

NOTE.—Figures for 1949, 1954 and 1959 resulted from a departmental census taken every five years until 1959; those for 1961-69 are taken from data kept for administrative purposes by the Indian Affairs Branch.

Province or Territory	1949	1954	1959	1961	1963	1965	1967	1969
	No.	No.	No.	No.	No.	No.	No.	No.
Prince Edward Island.....	273	272	341	348	374	393	409	432
Nova Scotia.....	2,641	3,002	3,561	3,746	3,935	4,099	4,287	4,524
New Brunswick.....	2,139	2,629	3,183	3,397	3,629	3,824	4,039	4,280
Quebec.....	15,970	17,574	20,453	21,793	23,043	24,446	25,650	26,985
Ontario.....	34,571	37,255	42,668	44,942	47,260	49,556	51,731	54,072
Manitoba.....	17,549	19,684	23,658	25,681	27,778	29,996	32,227	34,422
Saskatchewan.....	16,308	18,750	23,280	25,334	27,672	30,086	32,579	35,072
Alberta.....	13,805	15,715	19,287	20,931	22,738	24,587	26,440	28,343
British Columbia.....	27,936	31,086	36,229	38,616	40,990	43,250	45,152	46,955
Yukon Territory.....	1,443	1,568	1,868	2,006	2,142	2,292	2,477	2,661
Northwest Territories.....	3,772	4,023	4,598	4,915	5,235	5,569	5,911	6,277
<b>Totals.....</b>	<b>136,407</b>	<b>151,558</b>	<b>179,126</b>	<b>191,709</b>	<b>204,796</b>	<b>218,098</b>	<b>230,902</b>	<b>244,023</b>

**Administration.**—Pursuant to the British North America Act, the administration of Indian affairs, which had been under the management of several provinces, came under the jurisdiction of the Government of Canada in 1857. From January 1950 to December 1965, Indian affairs were the responsibility of a Branch of the Department of Citizenship and Immigration. By legislation passed in 1966 (RSC 1970, c. I-7) a new department was formed whereby the Indian Affairs Branch joined with part of the Department of Northern Affairs and National Resources to become the Department of Indian Affairs and Northern Development. This Department is composed of a headquarters staff at Ottawa, eight regional offices, and a varying number of district offices and field agencies. Attached to the headquarters and regional and district offices are specialists in such matters as education, economic and resource development, community affairs, social assistance, and engineering and construction.

**Education.**—The key to continual progress in Indian education is the active participation of the Indians themselves through their school committees and membership on school boards, strengthened by support from non-federal governments and from professional groups concerned specifically with the classroom instruction of Indian students. Although the Education Branch of the Department of Indian Affairs and Northern Development maintains and operates a number of schools for Indians, of the 66,707 Indian students in elementary and secondary schools in 1969-70, 38,837 attended non-federal schools, a system arranged for the most part through agreements between the Branch and individual school boards. In Manitoba, British Columbia and New Brunswick, however, under agreement with the respective provincial governments, a uniform tuition fee is paid for Indian students attending schools under the jurisdiction of the province. Federal financial assistance for Indian students attending non-federal schools varies from payment of tuition fees to full maintenance. Promising senior students are awarded scholarships to attend university or vocational school, and scholarships are given to those who show promise in the arts.



Federal schools for Indian children are in operation in all provinces except Newfoundland and school residences care for children who, because of isolation or other reasons, are unable to attend local schools. A two-year kindergarten program gives a head start to children who will receive classroom instruction in a language other than their mother tongue. This program is viewed as a major step in reducing premature withdrawal from school and age-grade retardation. The 1969-70 kindergarten enrolment in both federal and non-federal schools was 6,781.

### 3.—Enrolment of Indian Pupils in Elementary and Secondary Non-federal Schools classified by Grade and by Province, School Year 1969-70

(Exclusive of the Yukon and Northwest Territories)

Grade	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Total
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Pre-grade 1.....	—	103	—	262	307	288	317	204	608	2,089
Grade 1.....	1	68	34	256	539	572	1,148	662	1,175	4,455
2.....	2	54	39	285	540	505	864	581	885	3,755
3.....	1	51	30	275	464	451	786	537	786	3,381
4.....	1	44	65	243	533	388	676	540	734	3,224
5.....	1	48	109	265	579	378	658	521	783	3,342
6.....	2	44	121	381	553	409	572	548	797	3,427
7.....	2	73	84	509	635	405	571	459	730	3,468
8.....	4	63	77	521	506	337	375	403	856	3,142
9.....	3	55	51	314	939	440	318	405	678	3,203
10.....	2	31	37	200	640	306	213	307	435	2,171
11.....	1	13	21	152	322	181	116	162	275	1,243
12.....	—	13	12	39	268	107	81	138	195	853
13.....	—	—	—	—	42	—	—	—	—	42
Special.....	—	9	1	33	409	142	97	97	254	1,042
<b>Totals.....</b>	<b>20</b>	<b>669</b>	<b>681</b>	<b>3,735</b>	<b>7,276</b>	<b>4,909</b>	<b>6,792</b>	<b>5,564</b>	<b>9,191</b>	<b>38,837</b>

Seven Indians from across Canada are taking a two-year course in cinematography, sponsored jointly by the National Film Board and the Department of Indian Affairs and Northern Development. Each of these young men is quite famous in his own right, as an actor, musician, singer, radio programmer or teacher.



#### 4.—Enrolment of Indian Pupils in Elementary and Secondary Schools classified by Type of School and by Grade, School Years Ended 1966-70

Year and Type of School	Grade				Special	Absent from Reserve <sup>1</sup>	Total
	Pre-1	1-6	7-8	9-13			
	No.	No.	No.	No.	No.	No.	No.
1965-66.....	3,660	38,929	7,107	5,220	1,013	5,466	61,395
Federal <sup>2</sup> .....	3,093	24,566	3,203	716	462	—	32,040
Non-federal.....	567	14,363	3,904	4,504	551	5,466	29,355
1966-67.....	3,830	40,408	7,453	5,510	1,081	6,157	64,439
Federal <sup>2</sup> .....	2,939	24,672	3,093	427	210	157	31,498
Non-federal.....	891	15,736	4,360	5,083	871	6,000	32,941
1967-68.....	4,531	40,188	7,926	5,967	1,305	6,300	66,217
Federal.....	3,513	24,524	2,879	307	359	—	31,582
Non-federal.....	1,018	15,664	5,047	5,660	946	6,300	34,635
1968-69.....	5,916	40,331	8,250	6,832	1,505	..	62,834
Federal.....	4,363	21,845	2,720	209	346	..	29,483
Non-federal <sup>3</sup> .....	1,553	18,486	5,530	6,623	1,159	..	33,351
1969-70.....	6,781	41,764	9,191	7,761	1,210	..	66,707
Federal.....	4,692	20,180	2,581	249	168	..	27,870
Non-federal <sup>3</sup> .....	2,089	21,584	6,610	7,512	1,042	..	38,837

<sup>1</sup> Pupils (and parents) living off the reserves in communities with educational facilities usually attend non-federal schools; no separate records of them are maintained. <sup>2</sup> Excludes non-Indian pupils. <sup>3</sup> Excludes Yukon and Northwest Territories pupils.

#### 5.—Indian Students in Post-Secondary and Vocational Training, by Province, School Year 1969-70

(Exclusive of the Yukon and Northwest Territories)

Classification	P.E.I., N.S. and N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Canada
	No.	No.	No.	No.	No.	No.	No.	No.
University.....	12	37	74	33	56	52	57	321
Teacher training.....	4	7	3	7	—	3	25	49
Nurse training.....	2	3	10	2	—	5	2	24
Vocational.....	244	1,002	1,703	296	493	286	511	4,635
Upgrading.....	290	927	—	925	1,108	173	465	3,888
<b>Totals.....</b>	<b>552</b>	<b>1,976</b>	<b>1,790</b>	<b>1,263</b>	<b>1,657</b>	<b>519</b>	<b>1,060</b>	<b>8,817</b>

**Band Management.**—Community development agreements are being concluded with Indian associations, provincial governments, and the Federal Government for representative Indian associations to take over the administration of the community development programs in their various provincial areas as these associations see the need, request the authority to take on the responsibilities involved and are prepared to do so. The first agreement was made in 1969 with the Manitoba Indian Brotherhood and similar arrangements have since been concluded with Indian associations in Nova Scotia, New Brunswick, Saskatchewan and Alberta. In 1970-71, \$938,000 was given to Indian associations to carry out this work. In Ontario there exists a federal-provincial community development agreement extending provincial services to the Indian people, with costs shared on a population basis where both Indians and non-Indians are involved.

Community development programs have led to a much closer involvement of Indian people in their own affairs and many bands across the country are developing their own management and administrative organizations. A grants-to-bands program makes it

An agreement giving the Union of New Brunswick Indians authority to organize community development services for 4,423 Indians living on 14 reserves in New Brunswick is signed by the Minister of Indian Affairs and Northern Development and the President and Executive Vice President of the Union. Similar agreements were previously signed with Manitoba, Saskatchewan, Alberta and Nova Scotia Indian associations.



possible for participating bands to operate and administer programs with financial and advisory assistance from departmental staff. Expenditures under this program increased from \$1,299,245 in 1968-69 to \$2,728,290 in 1970-71 for band administrative expenses, including recreation and library grants, and from \$3,548,440 to \$16,630,272 for program funds turned over to Indian bands to administer. These include money for operating their own housing programs, school maintenance and transportation, welfare, road building and maintenance, utilities, policing, fire prevention and protection, etc. In 1968-69, 200 bands participated in the program and in 1970-71, 323 bands were involved. In the latter year, training courses were carried on continually in all provinces in such fields as leadership, human resource development, education, band government, homemaking and folk activities, and in many related areas. Administration and managerial functions were stressed, including municipal aspects such as fire, police, health, housing, recreation, roads and bridges, welfare budgets and estimates. These courses involved 5,000 Indian people and 50 departmental staff, for an estimated 15,000 man-days.

**Cultural Development.**—In recent years, encouragement has been given to the Indian people to develop and perpetuate their own culture. Grants totalling \$543,741 in the period 1965-70 have been given to individuals, groups and organizations for the development of fine arts and crafts, literature, folk songs, dancing and related activities. Linguists are contracted to write such languages as Micmac, Mohawk and Algonquin, so that eventually the Indians may read and write in their own language.

**Community Improvement.**—The Department through its Community Affairs Branch assists with the physical development of Indian communities which involves community planning on reserves, housing accommodation, water and sanitation, electrification, construction and maintenance of roads and bridges, etc. On request, guidance and technical advice is provided and financial assistance is given for securing the services of consultants.

Although Indian bands are expected to make the greatest possible contribution from band funds toward the cost of housing and ancillary services and individuals are also



expected to make the greatest possible personal contributions toward the cost of their own housing, some financial assistance is also available. During 1971, a number of Indian bands and individuals obtained loans from the Central Mortgage and Housing Corporation on the strength of repayment guarantees given by the Minister of the Department. There were 1,856 new housing units constructed on Indian reserves in the year ended Mar. 31, 1971. The Department administers three basic housing programs on reserves and one off-reserve housing program, described as follows:—

1. Subsidy housing program..... Direct subsidy by the Federal Government through the Department.
2. Band-administered housing program... Band councils may, by resolution, request authority to administer federal appropriation, either as the sole source of financing or in conjunction with band funds and housing loans from the Central Mortgage and Housing Corporation.
3. Indian on-reserve housing program.... Individual housing loans, guaranteed by the Minister, from the Central Mortgage and Housing Corporation as the sole source of financing or in conjunction with band funds or federal subsidy.
4. Indian off-reserve re-establishment housing program..... Indians who obtain employment away from their reserves and who wish to live in non-Indian communities may obtain mortgage loans from the Central Mortgage and Housing Corporation or approved lenders in conjunction with forgivable mortgage loans from the Federal Government.

The Department continues to place emphasis on overcoming the isolation of many reserves by the building and upgrading of roads which are essential in facilitating the movement of Indian people between Indian and non-Indian communities for purposes of employment and marketing and participation of Indian children in off-reserve school programs. Where necessary and economically feasible, capital grants are made to provincial governments or their electric power commissions for the building of power lines to reserves and for the installation of water supply and sanitation systems. In isolated areas where the Indian people are unable to provide a supply of potable water by their own resources, they are assisted with the digging or drilling of wells and with the acquisition of either hand pumps or individual pressure systems.

**Economic Development.**—The Department, through its Indian and Eskimo Economic Development Branch, assists individuals and bands in their efforts to create business and employment opportunities in service and secondary industries and in areas of resource utilization and land development, including the development of mineral resources on Indian reserves. Many of these programs are conducted in co-operation with other Federal Government departments, provincial governments and private organizations. Assistance is in the form of loans, grants, loan guarantees, technical and management advice, and specialized training. The loans, grants and guarantees are provided from the Indian Economic Development Fund, capitalized at \$19,050,000 for the year ended Mar. 31, 1972. In addition, the Branch has 1971-72 appropriations totalling \$14,845,000 to be used for the encouragement of economic activity through the provision of basic infrastructure and professional and technical services. The Branch also administers the Indian reserves and surrendered lands as well as certain categories of Indian estates.

**Social Services.**—Indians, like other Canadians, are eligible for benefits from a number of welfare programs which are administered by different levels of government, Indian bands and private agencies. Like other Canadians, not all Indians have the same programs available to them, for some programs vary between and within provinces and on and off reserves.

Some Indian bands administer social assistance and child care for persons living on the reserve of the band. The criteria of eligibility and rates of payment for social assistance are generally based on those of the province in which the band is located. Family allowances, youth allowances, old age security and the guaranteed income supplement are paid to Indians by the Department of National Health and Welfare on the same basis as they are paid to other Canadians.

Indians are eligible for benefits from some, but not all, provincial welfare programs except in the Northwest Territories. Generally speaking, the provincial programs from which Indians are eligible for benefits are programs for specific categories of persons, such as the blind. Benefits from less specific programs, such as social assistance, are not generally available to Indians living on reserves, although they are in some parts of some provinces.

The federal Department of Indian Affairs and Northern Development provides social assistance, care for children and care for physically handicapped adults for Indians where these are not available from other sources. The criteria of eligibility and the rates used in calculating the amount to which an applicant for social assistance is entitled are based on those of the provinces in which the person applies for assistance.

**Indian Consultation and Negotiation.**—The proposals put forward in the 1969 Statement of the Government of Canada on Indian Policy were strongly criticized and rejected by most of the Indian people. This rejection extended to the Indian Consultation and Negotiation Group which had been formed during the late summer of 1969 to undertake consultation and negotiation with the Indians in respect to the Government's proposal. The Indians sought a different type of consultative structure, one that allowed direct dialogue at the political as well as the administrative level between the Indians and the Government of Canada. The Government reacted favourably—the Indian Consultation and Negotiation Group was phased out and discussion commenced with the Indians in regard to the format of a new consultative mechanism.

During 1970, considerable effort was made to develop criteria and procedures to enable the Government to respond to the needs of Indian groups to meet together and formulate their views and opinions and to prepare counterproposals. Discussions are continuing with other government departments that also provide funds to Indian groups and with the National Indian Brotherhood as to the best method of assisting the Indian association financially and to what degree. Substantial funds, in the form of per capita grants to assist in the organization and operation of association headquarters and financial contributions for all aspects of consultation and intercommunication, were made available to the various provincial brotherhoods and unions and to the National Indian Brotherhood as follows:—

<i>Brotherhoods and Unions in—</i>	<i>Per Capita Grant</i>	<i>Consultation Funds</i>	<i>Total</i>
	\$	\$	\$
Prince Edward Island.....	435	—	435
Nova Scotia.....	25,163	31,200	56,363
New Brunswick.....	25,791	30,200	55,991
Quebec.....	27,050	99,900	126,950
Ontario (2 associations).....	49,034	166,100	215,134
Manitoba.....	34,393	95,390	129,783
Saskatchewan.....	35,062	135,900	170,962
Alberta.....	28,443	98,991	127,434
British Columbia.....	47,016	327,090	374,016
Yukon Territory.....	27,438	48,200	75,638
Northwest Territories.....	23,918	50,477	74,395
National Indian Brotherhood.....	181,028	70,729	251,757
TOTALS.....	504,771	1,154,087	1,658,858

**Research and Liaison.**—A Research and Liaison Branch of the Department was formed during the latter part of 1970 to develop stronger liaison with Indian bands and

associations, carry out the research activities of the Indian-Eskimo program and collect and analyse data on Indian and Eskimo program activities. The Indians have expressed a desire to administer many activities at the band level and still others at the association level. Responsibilities for local administration and for economic and community development are being progressively transferred to the Indians themselves but such transfer presents difficulties that will not be easily or inexpensively met. Transfer techniques, financial arrangements, agreements and training programs are being developed and implemented in preparation for the federal staff to be phased out when the Indians are trained and competent. It is the task of the Branch to maintain and improve the reasonably effective dialogue that has been developed with most of the Indian associations.

A hundred years of federal administration of Indian affairs has left in its wake known problems pertaining to lands, treaty rights and other Indian rights, and others are in the course of identification by Indian research groups. Pressure is being exerted by the Indians to have many of these problems reviewed and a unit has been established to direct and co-ordinate the work, using a task-force approach to the problems.

The Program Information Unit acts as a focal point for program information of interest to Indian people. It is assembling descriptive and statistical information concerning the Department's programs, which will later be assessed, related and disseminated both inside and outside the Department. This work will be extended as may be appropriate to include programs of other agencies—federal, provincial and private—which might be of benefit to the Indians.

### **Eskimos**

Most of Canada's 17,000 Eskimos live in communities in the Northwest Territories and smaller numbers in Arctic Quebec (3,800), Labrador (1,300) and Manitoba (150). Since 1955, when the Federal Government began to take a more active interest in the North, considerable progress has been made toward improving the health standards, medical care and education of these northern people and toward establishing permanent communities in which such services can be offered.

As a result of a higher standard of living, the Eskimo birth rate is increasing from year to year. In 1970 it was 55 per 1,000 Eskimo population compared with the Canadian average of 18 per 1,000. In 1970, 95 p.c. of the school-age Eskimo children were in school, most of them in community schools in which grades one to six are taught. Those who continue their education move to larger communities to attend secondary or vocational schools. There are seven high schools in the Northwest Territories. Vocational schooling is available in Yellowknife and Frobisher Bay and pre-vocational courses are given in Churchill, Man. When Eskimo children must leave their communities to continue their education, the Government provides transportation, room and board, clothing, and a weekly allowance. A number of Eskimos have learned trades and special skills and have become pilots, authors, heavy equipment operators, classroom assistants, hairdressers and nurses' aides. Two Eskimos are members of the Northwest Territories Council (see p. 130) and many others are active in local community organizations. It appears now that Eskimo students are reaching an educational level that will allow them to continue their education and training beyond present grades and thereby to gain employment, to engage in certain business tasks, to take part in politics, and to travel with confidence in the South. Although school instruction has been in English, the Eskimo language is now being emphasized, especially in the lower grades.

Although many Eskimos still exist on what they earn from hunting and trapping, an increasing number work for wages or are engaged in cottage industry. Co-operative efforts in canning and marketing gourmet Arctic foods, in manufacturing parkas and in producing handicrafts and sculpture netted the co-operatives over \$2,000,000 in 1970. Working in local stores, with mining companies or for the Government are other common employments. Since new industries will be needed in the future to provide employment, the Federal and the Northwest Territories Governments carry out economic surveys to





Pond Inlet families arrive at church on toboggans towed by snowmobiles. In this and other small Eskimo settlements in the Northwest Territories, the traditional dog team is fast disappearing as a means of transportation.

Two Eskimo members of the staff of Canadian Arctic Producers, a wholesale marketing organization for Eskimo arts and crafts, present a green serpentine hawk to Her Royal Highness Princess Margriet of the Netherlands following the opening of an exhibit of carvings and prints at The Hague. The hawk was carved by Oshoowetak of Cape Dorset.



pinpoint possible areas of development. They offer incentives to those who wish to develop the North and have set up machinery to encourage developers to employ native workers.

A five-year northern housing program was initiated by the Federal Government in 1965 and, since then, 1,484 three-bedroom houses have been provided for Eskimo families. The rent paid by the Eskimos for these houses covers basic services such as electricity, water, fuel oil and garbage collection. Regular payments toward the purchase of the houses can be made.

Medical care is the responsibility of the Department of National Health and Welfare. There are 10 hospitals in the Northwest Territories, 19 nursing stations, eight health stations and six health centres. Eskimos requiring care are flown to medical centres by the Government if there is no such centre in their community.

Responsibility for education, welfare, municipal services and other "provincial-type" functions in the Northwest Territories has been transferred from the Federal Government to the Territorial Government in Yellowknife (see p. 127). The Department of Indian Affairs and Northern Development continues to manage the natural resources of the Northwest Territories.

## Section 4.—Statistics of World Population

World population figures given in Table 6 are from the *United Nations Population and Vital Statistics Report* for January 1971 and, except as otherwise noted, are mid-year estimates for 1969. Area figures are from the *United Nations Statistical Yearbook 1969*.

**Estimated Population of the World by Continent.**—The following statement presents estimates of the 1969 mid-year population of the world by continental divisions. These aggregates do not coincide exactly with the sum of the figures for individual countries because they include, in addition, adjustments for over- and under-enumeration, over- and under-estimation, and data for categories of population not regularly included in the official figures.

<i>Continental Division</i>	<i>Population</i>
	'000
Africa.....	345,000
North America.....	314,000
South America.....	186,000
Asia.....	1,985,000
Europe.....	463,000
Oceania.....	18,900
Union of Soviet Socialist Republics..	240,000
<b>WORLD TOTAL.....</b>	<b>3,552,000</b>

## 6.—Areas and Populations of the Countries or Areas of the World

Continent and Country	Area	Population
	sq. miles	'000
<b>Africa</b>		
Algeria.....	919,595	13,349
Angola, incl. Cabinda.....	481,354	5,430
Botswana.....	231,805	629
British Indian Ocean Territory.....	30	2
Burundi.....	10,747	3,475
Cameroon.....	183,569	5,736
Cape Verde Islands.....	1,557	250
Central African Republic.....	240,535	1,518

## 6.—Areas and Populations of the Countries or Areas of the World—continued

Continent and Country	Area	Population
	sq. miles	'000
<b>Africa—concluded</b>		
Chad.....	495,755	3,510
Comoro Islands.....	838	270
Congo, Democratic Republic of.....	905,568	17,100
Congo, People's Republic of (formerly Congo, Brazzaville).....	132,047	915
Dahomey.....	43,484	2,640
Equatorial Guinea.....	10,831	286
Ethiopia.....	471,778	24,769
French Southern and Antarctic Territories.....	2,918	1
French Territory of the Afars and the Issas.....	8,494	81
Gabon.....	103,347	485
Gambia.....	4,361	357
Ghana.....	92,100	8,600
Guinea.....	94,926	3,890
Ivory Coast.....	124,504	4,195
Kenya.....	224,960	10,606
Lesotho.....	11,720	890
Liberia.....	43,000	1,150
Libya.....	679,362	1,869
Madagascar.....	226,658	6,600
Malawi.....	45,747	4,398
Mali.....	478,767	4,881
Mauritania.....	397,956	1,140
Mauritius (Islands of Mauritius, Rodrigues, Agalega and St. Brandon).....	790	823
Morocco, incl. Ifni.....	172,414	15,105
Mozambique.....	302,330	7,376
Namibia.....	318,261	615
Niger.....	489,191	3,909
Nigeria.....	356,669	64,560
Portuguese Guinea.....	13,948	530
Réunion.....	969	436
Rwanda.....	10,169	3,500
St. Helena, excl. dependencies.....	47	5
Ascension and Tristan da Cunha.....	74	1
São Tomé and Príncipe.....	372	66
Senegal.....	75,750	3,780
Seyonelles.....	145	51
Sierra Leone.....	27,699	2,512
Somalia.....	246,201	2,730
South Africa.....	471,445	19,618
Southern Rhodesia.....	150,333	5,090
Spanish North Africa.....	12	164
Spanish Sahara.....	102,703	63
Sudan.....	967,500	15,186
Swaziland.....	6,704	410
Togo.....	21,622	1,815
Tunisia.....	63,379	5,027
Uganda.....	91,134	9,500
United Arab Republic.....	386,662	32,501
United Republic of Tanzania.....	362,821	12,926
Tanganyika.....	561,808	12,657
Zanzibar.....	1,019	369
Upper Volta.....	105,869	5,278
Zambia.....	290,586	4,208
<b>America, North</b>		
Antigua.....	171	63
Bahamas.....	4,403	169 <sup>2</sup>
Barbados.....	166	253
Bermuda.....	20	51
British Honduras.....	8,867	120
British Virgin Islands.....	59	9
Canada.....	3,851,809	21,089
Cayman Islands.....	100	12
Costa Rica.....	19,575	1,685
Cuba.....	44,218	8,250
Dominica.....	290	74
Dominican Republic.....	18,816	4,174

For footnotes, see end of table, p. 218.



## 6.—Areas and Populations of the Countries or Areas of the World—continued

Continent and Country	Area	Population
	sq. miles	'000
<b>America, North—concluded</b>		
El Salvador.....	8,260	3,390
Greenland.....	840,004	47
Grenada.....	133	105
Guadeloupe.....	687	323
Guatemala.....	42,042	5,014
Haiti.....	10,714	4,768
Honduras.....	43,277	2,495
Jamaica.....	4,232	1,952
Martinique.....	425	332
Mexico.....	761,604	48,933
Montserrat.....	38	15
Netherlands Antilles.....	371	218
Nicaragua.....	50,193	1,915
Panama, excl. Canal Zone.....	29,209	1,417
Canal Zone.....	553	57
Puerto Rico.....	3,435	2,754
St. Kitts-Nevis-Anguilla.....	138	56
St. Lucia.....	238	110
St. Pierre and Miquelon.....	93	5
St. Vincent.....	150	95
Trinidad and Tobago.....	1,980	1,040
Turks and Caicos Islands.....	166	6
United States of America.....	3,615,211	203,213
United States Virgin Islands.....	133	60
<b>America, South</b>		
Argentina.....	1,072,163	23,983
Bolivia.....	424,165	4,804
Brazil.....	3,286,488	90,840
British Antarctic Territory.....		1
Chile.....	292,258	9,566
Colombia.....	439,737	20,463
Ecuador.....	109,484	5,890
Falkland Islands, excl. dependencies.....	4,618	2
French Guiana.....	35,135	48
Guyana.....	83,000	742
Paraguay.....	157,048	2,314
Peru.....	496,225	13,172
Surinam.....	63,037	389
Uruguay.....	72,173	2,852
Venezuela.....	352,145	10,035
<b>Asia</b>		
Afghanistan.....	250,000	16,516
Bahrain.....	231	207
Bhutan.....	18,147	770
Brunei.....	2,226	116
Burma.....	261,790	26,980
Cambodia.....	69,898	6,701
Ceylon.....	25,332	12,240
China, People's Republic of.....	3,691,523	740,000
Cyprus.....	3,572	630
Hong Kong.....	399	3,990
India, incl. Jammu and Kashmir.....	1,261,817	536,984
Indonesia, excl. West Irian.....	575,896	116,000
West Irian.....	159,376	918
Iran.....	636,296	27,892
Iraq.....	167,925	9,350
Israel.....	7,992	2,822
Japan, incl. Bonin Islands.....	142,812	102,321
Jordan.....	37,738	2,217
Korea, incl. area of demilitarized zone.....	85,032	44,439
Democratic People's Republic of Korea (formerly North Korea).....	46,540	13,300
Republic of Korea.....	38,022	31,139
Kuwait.....	6,178	570

For footnotes, see end of table, p. 218.

## 6.—Areas and Populations of the Countries or Areas of the World—continued

Continent and Country	Area	Population
	sq. miles	'000
<b>Asia—concluded</b>		
Laos.....	91,429	2,893
Lebanon.....	4,015	2,645
Macau.....	6	260
Malaysia—		
East Malaysia.....	77,730	1,581
Sabah.....	29,388	636
Sarawak.....	48,342	945
West Malaysia.....	50,700	9,000
Maldives.....	115	108
Mongolia.....	604,250	1,240
Muscat and Oman.....	82,030	565
Nepal.....	54,362	10,845
Pakistan, excl. Jammu and Kashmir.....	365,529	111,830
Palestine.....	10,460	1,912 <sup>2</sup>
Gaza Strip.....	146	356 <sup>2</sup>
Philippines.....	115,831	37,158
Portuguese Timor.....	5,763	590
Qatar.....	8,500	100
Ryukyu Islands.....	848	973
Saudi Arabia.....	830,000	7,200
Sikkim.....	2,744	191
Singapore.....	224	2,017
Syria.....	71,498	5,866
Taiwan.....	13,885	13,800
Thailand.....	198,457	54,738
Trucial Oman.....	32,278	185
Turkey.....	301,382	34,375
In Asia.....	292,261	31,408
In Europe.....	9,121	2,967
Viet-Nam.....	127,242	39,207
Democratic Republic of Viet-Nam (formerly North Viet-Nam).....	61,294	21,340
Republic of Viet-Nam.....	67,108	17,867
Yemen.....	75,290	5,000
Yemen, People's Democratic Republic of (formerly Southern Yemen).....	111,075	1,220
<b>Europe</b>		
Albania.....	11,100	2,075
Andorra.....	175	19
Austria.....	32,374	7,373
Belgium.....	11,781	9,646
Bulgaria.....	42,823	8,434
Channel Islands.....	75	117
Czechoslovakia.....	49,371	14,418
Denmark.....	16,629	4,891
Faeroe Islands.....	540	38
Finland.....	130,120	4,703
France.....	211,208	50,320
Germany—		
Federal Republic of Germany.....	95,743	58,707
German Democratic Republic (formerly Eastern Germany).....	41,611	15,993
East Berlin.....	156	1,083
West Berlin.....	186	2,135
Gibraltar.....	2	27
Greece.....	50,944	8,838
Holy See.....	3	1
Hungary.....	35,919	10,295
Iceland.....	39,769	203
Ireland.....	27,136	2,921
Isle of Man.....	227	50
Italy.....	116,304	53,170
Liechtenstein.....	61	22
Luxembourg.....	998	338
Malta.....	122	323
Monaco.....	3	23
Netherlands.....	12,978	12,873
Norway.....	125,182	3,851
Poland.....	120,664	32,555

For footnotes, see end of table, p. 218.

## 6.—Areas and Populations of the Countries or Areas of the World—concluded

Continent and Country	Area	Population
	sq. miles	'000
<b>Europe—concluded</b>		
Portugal, incl. the Azores and Madeira Islands.....	35,553	9,560
Romania.....	91,699	20,010
San Marino.....	24	19
Spain.....	194,885	32,949
Svalbard and Jan Mayen Islands.....	24,101	3 <sup>2</sup>
Sweden.....	178,649	7,978
Switzerland.....	16,327	6,224
United Kingdom of Great Britain and Northern Ireland.....	94,221	55,534
England and Wales.....	58,348	48,897
Northern Ireland.....	5,468 <sup>2</sup>	1,612
Scotland.....	30,411	5,195
Yugoslavia.....	98,766	20,351
<b>Oceania</b>		
American Samoa.....	76	32
Australia.....	2,967,894	12,296
British Solomon Islands.....	11,500	150
Canton and Enderbury Islands.....	27	1
Christmas Island.....	52	3
Cocos (Keeling) Islands.....	5	1
Cook Islands.....	90	20
Fiji.....	7,055	519
French Polynesia.....	1,544	105
Gilbert and Ellice Islands.....	342	54
Guam.....	212	102
Johnston Island.....	3	1
Midway Islands.....	2	2
Nauru.....	8	7
New Caledonia.....	7,336	98
New Guinea.....	92,160	1,715
New Hebrides.....	5,700	80
New Zealand.....	103,736	2,777
Niue Island.....	100	5
Norfolk Island.....	14	1
Pacific Islands.....	687	98
Papua.....	86,100	648
Pitcairn Island.....	2	1
Tokelau Islands.....	4	2
Tonga.....	270	83
Wake Island.....	3	1
Wallis and Futuna Islands.....	77	9
Western Samoa.....	1,097	141
<b>Union of Soviet Socialist Republics</b>		
Union of Soviet Socialist Republics.....	8,649,539	240,571

<sup>1</sup> Fewer than 500 persons.<sup>2</sup> Latest official estimate.<sup>3</sup> Less than one square mile.



## CHAPTER IV.—IMMIGRATION AND CITIZENSHIP

### CONSPECTUS

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*The interpretation of the symbols used in the tables throughout the Year Book will be found on p. vii of this volume.*

### PART I.—IMMIGRATION AND EMIGRATION\*

#### Section 1.—Immigration Policy and Administration

**Policy.**—Traditionally, Canada has sought to increase its population through immigration in order to expand the domestic market, reduce per capita costs of administration, stimulate economic activity by providing new skills, ideas and enthusiasms, and support a higher level of cultural independence and creativity. Canadian experience indicates that a substantial volume of immigration is highly desirable but new population cannot be added haphazardly without regard to their means of subsistence or their effect on Canadian life. Technological change and the development of Canadian society to its present complex state require that, to be able to establish themselves successfully, new settlers must be economically competitive in terms of education, training, skills and personal qualities. Over the years, Canada has endeavoured to acquire immigrants who were adaptable to Canadian life. Such persons, finding familiar institutions in Canada, feel more at home and this assists in their establishment in the new life they find here. Canada makes every effort to sustain the movement of immigrants from countries having like economic, social and political backgrounds but people anywhere in the world may immigrate to Canada if they demonstrate their suitability for life in this country and are likely to become established without hardship to themselves or disruption to the communities in which they settle.

It may be mentioned also that Canada, in addition to welcoming immigrants, has on many occasions during the past quarter-century sanctioned the entry of groups of refugees. This is a humanitarian movement and is tangible evidence of Canada's recognition of its responsibilities in the international community. A conservative estimate of the number of refugees admitted since 1945 is 350,000.

On Oct. 1, 1967, Canada adopted new Immigration Regulations which are applied universally; these evolved from a White Paper on Immigration, tabled in the House of

\* Sections 1 and 2 of this Part were revised by the Secretariat Section of the Canada Immigration Division, Department of Manpower and Immigration, Ottawa. The history of immigration and the Immigration Act and Regulations up to the mid-1950s is dealt with in detail in a special article entitled "Developments in Canadian Immigration" appearing in the 1957-58 Year Book at pp. 154-176.

Commons on Oct. 14, 1966. After study by a Joint Committee of the Senate and the House of Commons and their consideration of representations by Members of Parliament, representatives of provincial governments, private organizations and individuals, the Regulations were authorized by Order in Council (PC 1967/1616). These Regulations present in detail the principles involved in selection of immigrants, and indicate the factors that immigration officers must take into account in assessing potential immigrants.

The assessment system for potential immigrants is based on the following factors: (1) *Education and Training*—up to 20 assessment units to be awarded on the basis of one unit for each successful year of formal education or occupational training; (2) *Personal Assessment*—up to 15 units on the basis of the immigration officer's assessment of the applicant's adaptability, motivation, initiative and other similar qualities; (3) *Occupational Demand*—up to 15 units if demand for the applicant's occupation is strong within Canada, and whether the occupation is skilled or unskilled; (4) *Occupational Skill*—up to 10 units for the professional, ranging down to one unit for the unskilled; (5) *Age*—10 units for applicants under age 35 with one unit deducted for each year over age 35; (6) *Arranged Employment*—10 units if the applicant has a definite job arranged in Canada; (7) *Knowledge of French and English*—up to 10 units, dependent upon the degree of fluency in French and/or English; (8) *Relative*—up to five units if the applicant has a relative in Canada able to help him become established but unprepared or unable to sponsor or nominate him; and (9) *Employment Opportunities in Area of Destination*—up to five units if the applicant intends to go to an area of Canada where there is a generally strong demand for labour.

The Regulations formally confirm that Canadian citizens or permanent residents are entitled to bring their dependants to Canada, making a clear distinction between dependants and relatives entering the working force. Thus, there are three categories of immigrants—"sponsored dependants", "nominated (non-dependent) relatives", and "independent applicants". A "dependant" is defined for immigration purposes as: husband or wife, fiancé or fiancée; unmarried son or daughter under age 21; parent or grandparent over age 60, or younger if widowed or unable to work; an orphaned brother, sister, nephew, niece or grandchild under age 18. Provision is also made for an adopted child and, where the only dependant is a husband or wife, for the nearest living relative. An application for a dependant is dealt with irrespective of whether he is in Canada or abroad and irrespective of the financial circumstances of the sponsor. He will be admitted to Canada provided he is in good health and of good character.

The "nominated (non-dependent) relative" category includes son or daughter over age 21, married son or daughter under age 21, brother or sister, parent or grandparent under age 60, nephew, niece, uncle, aunt or grandchild. The responsibilities of the nominator include willingness and ability to provide accommodation, care and maintenance for the person applied for and to otherwise assist him in becoming established. The nominator is required to sign such an undertaking for a period of five years. Because of the assistance provided by the nominator in Canada, the nominee is assessed on only some of the selection factors—education, personal qualities, occupational demand, age and occupational skill. On the general assumption that a Canadian citizen usually will be better established in Canada than a more recent arrival and hence in a better position to give his relative more assistance, a slightly higher preference is given to a relative nominated by a Canadian citizen than to one nominated by a permanent resident.

To qualify for admission to Canada, an "independent applicant" normally must obtain 50 of the 100 assessment units available, although it is possible to combine factors in such a way that some of them may compensate for relatively low qualifications in others. The major purpose of the standards is to select immigrants who can make a successful adjustment to life in Canada and thereby contribute to the country's progress.

The main factors for successful establishment are education, personal qualities and occupational demand. As far as the education of the individual is concerned, the principle of successful educational achievement in the immigrant's home has been adopted since it has been found impracticable to equate educational standards in many countries to

Canadian standards. In assessment of his personal qualities, the applicant will be considered as to his chances for success in Canada in terms of his economic establishment and his personal satisfaction as well as on the composition and the attitudes of his whole family. The personal assessment process also includes the function of counselling and the applicant is informed about the market in different areas of Canada for his skills and about the difficulties he may encounter in adjusting to the Canadian way of life. The demand in Canada for the applicant's skill or occupation is given due importance. The Department is responsible for immigration but is equally concerned with manpower and is obliged to discourage immigration for the applicant with an occupation for which there is little or no demand in this country. Where there are shortages of labour in certain industries, Canadian employers or provincial officials may interview candidates abroad for such industries and channel them to the Department's visa offices but these candidates also must comply with the selection standards.

The other six selection criteria have individually lesser weight but in total are equal to the three main factors. In considering adaptability in a new environment, occupational skill is important. A person's skill is usually acquired at a price in financial terms. It is an investment and the higher the investment usually the higher the skill and thus the greater the gain to Canada. Age must be taken into account when considering adaptability in a new environment. On average, younger people adjust more easily and for this reason the age group up to 35 years is assigned the maximum number of assessment units, with one unit deducted for each year over 35. However, an older person is not refused on this factor if he has other assets such as highly developed skills that are in demand in Canada. Credit will be given to an applicant who has a firm commitment from a Canadian employer because this will assist his economic establishment during the initial period after arrival. Economic and social adjustment of a new immigrant is greatly facilitated by knowledge of the languages of his adopted country. As a consequence, units of assessment are given to applicants for the degree of their fluency in either English or French or both. An applicant whose mother tongue is other than English or French may be given some credit for even a partial knowledge of either or both of the two languages. In fact, it is possible that such an applicant may obtain more assessment units on the language factor than a unilingual applicant who speaks only English or French. If an applicant has a relative in Canada who is able to help him become established, credit is given for this factor since the presence of a relative is a definite asset in the adjustment process.

No one is compelled to go to any particular area in Canada but, if a prospective immigrant is counselled by an immigration officer to go to an area that offers the best opportunity for him and is prepared to accept that advice, he is awarded the units appropriate for that area. If the over-all demand for labour is higher in any one area in Canada than in others, the total assessment of the immigrant destined to that area reflects that high demand. The assessment of individual areas in Canada as to their over-all demand for labour, and the assessment of national demand for individual occupations is conducted on a continuous basis so that selection officers overseas are in possession of up-to-date information at all times.

The Regulations provide for the admission to Canada for permanent residence of persons who have come as visitors. However, since open acceptance of applications from visitors would be inefficient and would give an undue advantage to some people, a visitor is not given any credit for arranged employment in Canada, so that he must qualify on other factors. Conditions of entry must have been observed and, in particular, the applicant must not have taken employment in Canada if not authorized to do so. Foreign students studying at recognized Canadian institutions are regarded as any other visitors applying for permanent residence in Canada. However, if foreign students are under an obligation to their government to return to their own country, they are not permitted to apply for permanent residence in Canada. Applications for permanent residence from seamen on shore leave are not accepted.



A Canadian citizen sponsor whose application for the admission of a dependant is refused or an immigrant who has been ordered deported has the right to appeal to an independent Immigration Appeal Board, the establishment of which was authorized by Act of Parliament in 1967. The Board is a Court of Record, entirely separate from the Department and with the authority to enforce its orders.

**Administration.**—The Canada Immigration Division of the Department of Manpower and Immigration administers the Immigration Act and Regulations. The Division has three main Branches. The Programs and Procedures Branch is responsible for the long- and short-range planning of immigration policies and programs, interpretation of the Immigration Act and Regulations and immigration policies, the co-ordination of immigration policies developed internally, functional support in respect of the transportation and initial reception of immigrants in Canada and liaison with transportation companies. The Home Services Branch is responsible for the disposition of difficult individual immigration cases, the provision of procedural guidance to field officers, the formulation of policies and guidelines on the enforcement aspects of immigration operations, and the provision of technical advice on procedures relating to the admission of immigrants and non-immigrants. The Foreign Branch is responsible for the management of the Overseas Service, uniform application of selection standards, promotional activities abroad, implementation of approved programs abroad and the proper counselling and direction of immigrants.

There are 36 visa-issuing offices located abroad—at London, Manchester, Birmingham, Glasgow, Belfast, Dublin, Paris, Bordeaux, Marseille, Brussels, Berne, The Hague, Copenhagen, Cologne, Hamburg, Stuttgart, Vienna, Budapest, Belgrade, Stockholm, Lisbon, Madrid, Rome, Milan, Athens, Cairo, Tel Aviv, Beirut, New Delhi, Islamabad, Tokyo, Hong Kong, Manila, Sydney, Port of Spain and Kingston (Jamaica). Information offices visited at intervals by immigration officers based in Stockholm or in Copenhagen are maintained in Oslo and Helsinki. Three offices in the United States—at New York, Chicago, and San Francisco—provide information and counselling but do not issue visas. Personnel at all posts are kept in close touch with economic conditions in Canada and thus are able to advise immigrants regarding their prospects for successful establishment in this country. Examination of immigrants and visitors is carried out at 547 ports of entry on Canadian coasts, at points along the International Boundary, and at certain airports and inland offices.

## Section 2.—Immigration Statistics

Table 1 shows the number of immigrants arriving in Canada in each year since 1913, the peak year of immigration into the country.

### 1.—Immigrant Arrivals, 1913-70

NOTE.—Figures for 1852-93 are given in the 1942 Year Book, p. 153, and for 1894-1912 in the 1948-49 edition, p. 175.

Year	Arrivals	Year	Arrivals	Year	Arrivals	Year	Arrivals	Year	Arrivals
No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
1913.....	400,870	1925.....	84,907	1937.....	15,101	1949.....	95,217	1961.....	71,689
1914.....	150,484	1926.....	135,982	1938.....	17,244	1950.....	73,912	1962.....	74,586
1915.....	36,665	1927.....	158,886	1939.....	16,994	1951.....	194,391	1963.....	93,151
1916.....	55,914	1928.....	166,783	1940.....	11,324	1952.....	164,498	1964.....	112,606
1917.....	72,910	1929.....	164,993	1941.....	9,329	1953.....	168,868	1965.....	146,758
1918.....	41,845	1930.....	104,806	1942.....	7,576	1954.....	154,227	1966.....	194,743
1919.....	107,698	1931.....	27,530	1943.....	8,504	1955.....	109,946	1967.....	222,876
1920.....	138,824	1932.....	20,591	1944.....	12,801	1956.....	164,857	1968.....	183,974
1921.....	91,728	1933.....	14,382	1945.....	22,722	1957.....	282,164	1969.....	161,531
1922.....	64,224	1934.....	12,476	1946.....	71,719	1958.....	124,851	1970.....	147,713
1923.....	133,729	1935.....	11,277	1947.....	64,127	1959.....	106,928		
1924.....	124,164	1936.....	11,643	1948.....	125,414	1960.....	104,111		

The extent of immigration to Canada in any period is affected both by domestic conditions and by conditions abroad. However, these influences are seldom immediately decisive. News of good economic conditions in Canada predisposes people in favour of this country but, because the immigration process usually takes several months, actual immigration is not always fully coincidental with the economic situation, so that immigration may at times be slight in good years but appear unduly heavy in less buoyant periods. The time-lag caused by selection, medical examination and documentation is unavoidable. Transportation is often another delaying factor and to these considerations must be added the effect of seasonal unemployment in Canada, which tends to discourage immigration during the months from November to April.

In the early 1960s, the Canadian economy experienced a levelling-off, and even a retrenchment in some areas, from its previous high level of activity and this was reflected in the country's intake of immigrants. However, this interval of economic adjustment lasted only a short time and by 1963 immigration had again risen to more normal levels. In that year, 93,151 immigrants came to Canada compared with 74,586 the year before. Promotional efforts abroad were intensified. A resident immigration officer was posted to Madrid to service immigration applications in Spain and area offices were established to enable teams of immigration officers to make regular visits to adjoining countries in an effort to broaden the base from which immigrants were selected.

In the following year, the number of immigrants admitted to Canada totalled 112,606, a 21-p.c. increase over 1963. By nationality, British immigrants constituted the largest number, followed by Italians and citizens of the United States. This increase was attributable to two principal factors—an intensification of promotional and recruiting activities in the main source countries, and an expansion of examination and selection facilities into areas from which Canada received few immigrants before the establishment of the Immigration Regulations that came into effect early in 1962. The achievements of 1964 were accomplished despite strong competition in Europe for skilled and educated workers and new postwar levels of prosperity. It is, therefore, of considerable significance that, of the 56,190 immigrants who entered the Canadian labour force in that year, 59 p.c. were in the more skilled categories; 13,177 were in the managerial, professional and technical categories, compared with 10,799 in 1963. In 1964, a resident immigration officer was posted to Marseille to expand facilities in France.

In 1965, Canada's demand for skilled immigrant workers once again exceeded the supply. Although skilled workers could be absorbed in large numbers, the need for unskilled workers diminished and for this reason the (then) Immigration Branch continued to emphasize the selection of immigrants possessing professional or other qualifications that would enable them to become established soon after their arrival. Most of the traditional immigrant source countries, particularly in Europe, continued to enjoy buoyant economic conditions. Skilled workers were much in demand and there was strong competition among immigration countries for a share of those skilled workers who were interested in emigration. The number of immigrants admitted to Canada totalled 146,758, a 30-p.c. increase over the preceding year. Immigrant workers who arrived numbered 74,195, of whom 67 p.c. were in the more skilled categories; those in the managerial, professional and technical categories numbered 18,382. As in the previous year, the major source countries were Britain, Italy and the United States. During 1965, Canadian immigration facilities abroad were substantially improved and expanded. Resident officers were posted to Milan, Italy, and Bordeaux, France, and offices at five other locations were modernized and refurbished.

The rising trend of immigration continued in 1966. In all, 194,743 immigrants came to Canada in that year, an increase of 33 p.c. over 1965. Immigrant workers numbered 99,210, of whom 74 p.c. were in the more skilled categories compared with 67 p.c. in 1965. Those in managerial, technical and professional categories numbered 25,929, which was almost 43 p.c. above 1965 and nearly double the 1964 figure. Of the total of 194,743 immigrants, 63,291 came from Britain, 31,625 from Italy and 17,514 from

the United States. There were significant developments in immigration administration and policy during the year. Briefly, as a result of the reorganization of several Federal Government departments, the Immigration Branch of the former Department of Citizenship and Immigration was amalgamated with large segments of the Department of Labour to form the new Department of Manpower and Immigration. The principal advantages to this alignment were that immigration became more closely identified with national manpower policies, and the extensive services of the Canada Manpower Division in counselling, placing and assisting workers became fully available to new immigrants (see p. 222). A policy for dealing with requests from visitors for permanent residence in Canada was introduced with good effect.

In 1967, the second largest number of immigrants arrived in Canada since the end of the Second World War. Of the 222,876 immigrants who came—representing an increase of 14 p.c. over 1966—119,539 were workers of whom 87 p.c. were in the more skilled categories compared with 74 p.c. in 1966. Those in the managerial, professional and technical categories numbered 33,876, a figure 31 p.c. above 1966. Of the total of 222,876 immigrants, 62,420 came from Britain, 30,055 from Italy and 19,038 from the United States.

Developments in Europe, including a more buoyant economy, and conditions in Canada have had a significant influence on trends in immigration since 1967. A lessening desire on the part of Europeans to migrate to Canada reduced the number of immigrants in 1968 to 183,974, in 1969 to 161,531, and in 1970 to 147,713. In addition, a strong trend in immigration patterns emerged, highlighted by an increase in the proportion of immigrants from North America, Asia and the West Indies. Britain provided 17.9 p.c. of the immigrant arrivals in 1970 compared with 19.8 p.c. in 1969 and continued to be the major source country but the flow from the United States increased to 16.5 p.c. from 14.1 p.c. in the same comparison. Italy accounted for 5.8 p.c. compared with 6.4 p.c. in 1969. Europe remained the major source area in 1970 but showed the largest reduction.

Analyses of the content of the immigration movement during the years 1968, 1969 and 1970 are given in Tables 2 to 8, and the numbers of persons deported from Canada for various reasons for 1966-70 in Table 9.

Table 2 classifies immigrant admission by country of former residence. During the three-year period shown, 20.3 p.c. of the immigration flow came from Britain and the Republic of Ireland, 36.9 p.c. from Continental Europe, 13.7 p.c. from the United States and 29.1 p.c. from all other countries. Comparable figures for 1967-69 were 24.1 p.c., 40.3 p.c., 11.0 p.c. and 24.6 p.c., respectively.

Of the immigrant arrivals in 1970, 39.1 p.c. were born in Commonwealth countries or in the Republic of Ireland compared with 39.7 p.c. in 1969 and 33.4 p.c. in 1968, 10.2 p.c. were born in Italy or Greece, 5.4 p.c. in Germany, France or the Netherlands, 14.1 p.c. in the United States, 6.4 p.c. in Spain or Portugal and 5.6 p.c. in Poland or Yugoslavia.

**2.—Immigrant Arrivals by Country of Former Residence, 1968-70**

Country	1968	1969	1970	Country	1968	1969	1970
	No.	No.	No.		No.	No.	No.
<b>Commonwealth—</b>				<b>Commonwealth—concluded</b>			
British Isles—				Guyana.....	823	1,865	2,090
England.....	28,623	24,556	19,967	Hong Kong.....	7,594	7,306	4,509
Northern Ireland.....	1,477	1,491	1,620	India.....	3,229	5,395	5,670
Scotland.....	7,302	5,426	4,452	Malta.....	447	341	263
Wales.....	449	490	434	New Zealand.....	1,105	885	924
Lesser Isles.....	38	14	24	Pakistan.....	627	1,005	1,010
Totals, British Isles....	37,889	31,977	26,497	West Indies.....	6,969	12,338	11,642
Australia.....	3,710	3,526	3,461	Other Commonwealth.....	1,722	2,399	2,581
Cyprus.....	278	239	298	<b>Totals, Commonwealth.</b>	<b>64,393</b>	<b>67,276</b>	<b>58,945</b>



## 2.—Immigrant Arrivals by Country of Former Residence, 1968-70 —concluded

Country	1968	1969	1970	Country	1968	1969	1970
No.	No.	No.	No.	No.	No.	No.	No.
<b>Republic of Ireland</b> .....	1,545	1,235	1,123	<b>Europe—concluded</b>			
<b>Africa</b> <sup>1</sup> .....	2,484 <sup>2</sup>	1,130 <sup>3</sup>	1,198 <sup>4</sup>	Switzerland.....	3,529	2,307	2,098
<b>Asia</b> <sup>1</sup> .....	5,326	5,996	6,202	Yugoslavia.....	4,660	4,053	5,672
<b>Europe</b> <sup>1</sup>				Other.....	1,264	2,089	1,171
Austria.....	8,125	2,083	745	<b>North America</b> <sup>1</sup>			
Belgium.....	1,081	1,004	660	Mexico.....	245	377	448
Finland.....	740	700	604	United States.....	20,422	22,785	24,424
France.....	8,184	5,549	4,410	Other.....	700	928	1,213
Germany.....	8,966	5,880	4,193	<b>South America</b> <sup>1</sup> .....	1,870	2,902	2,853
Greece.....	7,739	6,937	6,327	<b>Middle East</b> <sup>1</sup>			
Hungary.....	529	516	461	Egypt.....	1,915	1,429	913
Italy.....	19,774	10,383	8,533	Israel.....	1,497	863	818
Netherlands.....	3,264	2,494	1,916	Lebanon.....	1,682	1,196	1,206
Poland.....	1,092	859	723	Other.....	1,592	1,003	917
Portugal.....	7,738	7,182	7,902	<b>Other Countries</b> .....	—	3	15
Scandinavian Countries—							
Denmark.....	1,184	693	564	<b>Totals, All Countries</b> .....	<b>183,974</b>	<b>161,531</b>	<b>147,713</b>
Other.....	1,067	800	651				
Spain.....	1,367	879	808				

<sup>1</sup> Excludes Commonwealth countries.  
<sup>2</sup> 599 from the Republic of South Africa.

<sup>3</sup> Includes 924 from the Republic of South Africa.  
<sup>4</sup> Includes 646 from the Republic of South Africa.

<sup>3</sup> Includes

## 3.—Immigrant Arrivals, by Country of Birth, 1968-70

Birthplace	1968	1969	1970	Birthplace	1968	1969	1970
No.	No.	No.	No.	No.	No.	No.	No.
<b>Commonwealth—</b>				<b>Europe—concluded</b>			
British Isles—				Czechoslovakia.....	9,847	5,029	1,703
England.....	23,472	20,412	16,382	Denmark.....	1,063	650	486
Northern Ireland.....	1,665	1,594	1,709	Finland.....	819	772	694
Scotland.....	7,495	5,849	4,869	France.....	5,370	3,612	2,958
Wales.....	1,101	898	692	Germany.....	6,153	4,208	3,220
Lesser Isles.....	81	37	36	Greece.....	7,952	7,106	6,440
<b>Totals, British Isles</b> ...	<b>33,814</b>	<b>28,790</b>	<b>23,688</b>	Hungary.....	1,355	1,132	1,023
Australia.....	3,045	2,628	2,515	Italy.....	20,880	10,685	8,659
Canada.....	1,052	1,134	1,140	Netherlands.....	3,086	2,412	1,843
Cyprus.....	307	271	335	Norway.....	441	321	252
Guyana.....	1,028	2,044	2,252	Poland.....	1,854	1,563	1,403
Hong Kong.....	3,353	3,354	2,250	Portugal.....	8,720	7,917	8,594
India.....	4,675	6,736	7,089	Romania.....	502	453	488
Malta.....	507	381	307	Spain.....	1,665	998	913
New Zealand.....	1,100	895	947	Switzerland.....	2,067	1,606	1,576
Pakistan.....	626	885	1,010	Union of Soviet Socialist			
West Indies.....	8,091	12,846	12,173	Republics <sup>2</sup> .....	490	394	406
Other Commonwealth.....	1,898	2,513	2,624	Yugoslavia.....	6,841	5,462	6,892
<b>Totals, Commonwealth</b> ...	<b>59,496</b>	<b>62,477</b>	<b>56,330</b>	Other.....	768	662	571
<b>Republic of Ireland</b> .....	1,985	1,627	1,410	<b>Middle East</b> <sup>1</sup>			
<b>Africa</b> <sup>1</sup> .....	3,741	2,023	1,895	Egypt.....	2,456	1,839	1,273
<b>Asia</b> <sup>1</sup>				Israel.....	961	558	585
China.....	5,401	5,610	3,818	Lebanon.....	1,111	831	899
Japan.....	644	750	821	Turkey.....	957	671	491
Other.....	4,652	5,087	5,274	Other.....	1,489	864	878
<b>Europe</b> <sup>1</sup>				<b>North America</b> <sup>1</sup>			
Austria.....	862	598	494	Mexico.....	229	349	437
Belgium.....	754	769	485	United States.....	17,076	19,258	20,859
				Other.....	918	1,104	1,375
				<b>South America</b> <sup>1</sup> .....	1,340	2,114	2,254
				<b>Other</b> .....	9	20	14
				<b>Grand Totals</b> .....	<b>183,974</b>	<b>161,531</b>	<b>147,713</b>

<sup>1</sup> Excludes Commonwealth countries.

<sup>2</sup> In both Europe and Asia.

## 4.—Immigrant Arrivals, by Citizenship, 1968-70

Country of Citizenship	1968	1969	1970	Country of Citizenship	1968	1969	1970
No.	No.	No.	No.	No.	No.	No.	No.
Australia.....	3,380	3,074	2,916	Netherlands.....	3,312	2,529	1,947
Austria.....	787	504	431	New Zealand.....	1,126	913	969
Belgium.....	742	722	454	Norway.....	448	324	248
Britain and colonies.....	41,466	37,105	30,281	Pakistan.....	723	1,120	1,129
Central America.....	70	116	153	Poland.....	1,250	980	874
Ceylon.....	123	205	207	Portugal.....	8,841	8,031	8,700
China.....	5,259	5,272	3,465	Rhodesia.....	12	12	2
Czechoslovakia.....	9,653	4,721	1,411	South Africa.....	948	678	734
Denmark.....	1,061	633	470	South America.....	2,146	3,945	4,368
Egypt.....	1,948	1,471	986	Spain.....	1,683	995	912
Finland.....	806	758	681	Sweden.....	389	288	281
France.....	6,020	3,995	3,292	Switzerland.....	1,926	1,531	1,520
Germany.....	5,942	3,880	3,000	Trinidad and Tobago.....	2,444	5,610	4,811
Greece.....	8,157	7,134	6,506	Turkey.....	621	423	319
Haiti.....	599	708	987	Union of Soviet Socialist Republics.....	221	145	136
Hungary.....	715	626	541	United States.....	19,059	21,474	23,183
India.....	3,963	5,939	6,324	Yugoslavia.....	6,402	5,241	6,701
Ireland, Republic of.....	1,871	1,503	1,324	Other African.....	409	451	539
Israel.....	1,503	868	816	Other Asian.....	6,808	6,198	6,512
Italy.....	21,232	10,884	8,731	Other European.....	20	623	549
Jamaica.....	3,477	4,124	4,932	Stateless.....	1,792	1,810	1,642
Japan.....	628	698	785	Other.....	1,013	1,561	1,202
Lebanon.....	1,314	985	1,021				
Luxembourg.....	16	12	10				
Mexico.....	221	335	421				
Morocco.....	1,428	377	290				
				<b>Totals.....</b>	<b>183,974</b>	<b>161,531</b>	<b>147,713</b>

Sex distribution of recent immigrant arrivals is shown in Table 5. In the five years 1966-70, adult males comprised 37.5 p.c. of the immigrants, adult females 36.5 p.c. and children under 18 years of age the remaining 26.0 p.c. Without relation to age, 49.1 p.c. of the newcomers were females.

## 5.—Sex Distribution of Immigrants as Adult Males, Adult Females and Children, 1966-70

Item	1966	1967	1968	1969	1970
No.	No.	No.	No.	No.	No.
<b>Males.....</b>	<b>100,349</b>	<b>115,158</b>	<b>93,503</b>	<b>80,007</b>	<b>74,257</b>
Under 18 years.....	28,724	29,905	23,922	20,553	18,322
Adult.....	71,625	85,253	69,581	59,454	55,935
<b>Females.....</b>	<b>94,394</b>	<b>107,718</b>	<b>90,471</b>	<b>81,524</b>	<b>73,456</b>
Under 18 years.....	27,321	28,404	22,353	19,577	17,482
Adult.....	67,073	79,314	68,118	61,947	55,974
<b>Totals, Immigrants.....</b>	<b>194,743</b>	<b>222,876</b>	<b>183,974</b>	<b>161,531</b>	<b>147,713</b>

The number of female immigrants coming into Canada was higher than the number of male immigrants in every year from 1957 to 1964; since then, with the exception of 1969, the trend has been in favour of males. During 1970, in the single category, males outnumbered females by 6,648 whereas in the married category females exceeded males by 2,442, in the widowed category by 2,923 and in the divorced and separated category by 482. Of all persons arriving in 1970 who were 15 years of age or over, 52.1 p.c. were married, 42.1 p.c. were single and 5.5 p.c. were widowed, divorced or separated.

## 6.—Marital Status of Immigrant Arrivals, by Sex and Age Group, 1969 and 1970

Sex and Age Group	Single	Married	Widowed	Divorced	Separated	Total
	No.	No.	No.	No.	No.	No.
<b>1969</b>						
<b>Males—</b>						
0-14 years.....	18,079	—	—	—	—	18,079
15-19 ".....	5,420	75	—	—	2	5,497
20-24 ".....	11,962	3,684	5	36	15	15,702
25-29 ".....	7,847	8,052	7	134	46	16,086
30-39 ".....	3,309	11,555	35	258	112	15,269
40-49 ".....	398	4,190	37	123	63	4,811
50-59 ".....	87	1,761	78	37	20	1,983
60 years or over.....	56	2,022	441	37	24	2,580
<b>Totals, Males.....</b>	<b>47,158</b>	<b>31,339</b>	<b>603</b>	<b>625</b>	<b>282</b>	<b>80,007</b>
<b>Females—</b>						
0-14 years.....	16,982	5	—	—	—	16,987
15-19 ".....	4,793	1,542	1	1	3	6,340
20-24 ".....	10,222	9,041	13	63	32	19,371
25-29 ".....	5,715	8,513	21	182	56	14,487
30-39 ".....	2,715	9,024	103	331	96	12,269
40-49 ".....	532	3,343	305	255	92	4,527
50-59 ".....	198	1,833	1,007	146	97	3,281
60 years or over.....	261	1,442	2,356	123	80	4,262
<b>Totals, Females.....</b>	<b>41,418</b>	<b>34,743</b>	<b>3,806</b>	<b>1,101</b>	<b>456</b>	<b>81,524</b>
<b>1970</b>						
<b>Males—</b>						
0-14 years.....	16,050	—	—	—	—	16,050
15-19 ".....	4,748	80	—	—	—	4,828
20-24 ".....	11,613	3,896	4	36	19	15,568
25-29 ".....	7,508	7,726	14	160	70	15,478
30-39 ".....	3,080	10,494	25	247	99	13,945
40-49 ".....	328	3,745	35	123	46	4,277
50-59 ".....	77	1,548	68	53	21	1,767
60 years or over.....	66	1,795	434	34	15	2,344
<b>Totals, Males.....</b>	<b>43,470</b>	<b>29,284</b>	<b>580</b>	<b>653</b>	<b>270</b>	<b>74,257</b>
<b>Females—</b>						
0-14 years.....	15,152	8	—	—	—	15,160
15-19 ".....	4,273	1,593	1	1	4	5,872
20-24 ".....	9,430	8,686	11	56	31	18,214
25-29 ".....	4,822	7,787	26	180	58	12,873
30-39 ".....	2,286	7,838	86	295	104	10,609
40-49 ".....	443	2,971	263	197	84	3,958
50-59 ".....	161	1,618	853	135	75	2,842
60 years or over.....	255	1,225	2,263	105	80	3,928
<b>Totals, Females.....</b>	<b>36,822</b>	<b>31,726</b>	<b>3,503</b>	<b>969</b>	<b>436</b>	<b>73,456</b>

**Destinations and Occupations.**—Upon arrival in Canada, immigrants are asked to state their intended destinations. According to these records, Ontario absorbed by far the highest proportion of arrivals in the three-year period 1968-70—53.0 p.c. of all the males and 53.8 p.c. of all the females. Quebec was the second province of destination, receiving 17.9 p.c. of the males and 17.3 p.c. of the females, followed by British Columbia with 13.3 p.c. of the males and 13.5 p.c. of the females. The proportions intending to settle in the Prairie Provinces were 13.0 p.c. and 12.7 p.c., respectively, and in the Atlantic Provinces 2.5 p.c. for both males and females. The provincial distribution has changed little from year to year over the past two decades.



### 7.—Intended Province of Destination of Male and Female Immigrants Admitted to Canada, 1968-70

Province or Territory	1968			1969			1970		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland.....	505	501	1,006	421	411	832	310	320	630
Prince Edward Island.....	84	92	176	95	87	182	97	88	185
Nova Scotia.....	1,031	926	1,957	1,085	1,082	2,167	1,015	992	2,007
New Brunswick.....	518	507	1,025	599	640	1,239	555	515	1,070
Quebec.....	18,414	17,067	35,481	14,129	14,101	28,230	11,867	11,394	23,261
Ontario.....	48,419	47,736	96,155	42,720	43,868	86,588	40,207	40,525	80,732
Manitoba.....	4,712	4,011	8,723	3,083	3,297	6,380	3,007	2,819	5,826
Saskatchewan.....	1,852	1,705	3,557	1,209	1,283	2,492	836	873	1,709
Alberta.....	6,738	6,465	13,203	5,657	5,617	11,274	5,313	5,092	10,405
British Columbia.....	11,120	11,376	22,496	10,902	11,051	21,953	10,939	10,744	21,683
Yukon and Northwest Territories.....	110	85	195	107	87	194	111	94	205
<b>Canada.....</b>	<b>93,503</b>	<b>90,471</b>	<b>183,974</b>	<b>80,007</b>	<b>81,524</b>	<b>161,531</b>	<b>74,257</b>	<b>73,456</b>	<b>147,713</b>

In like manner, immigrant arrivals are asked to record the occupations they intend to follow in Canada. Approximately 52.6 p.c. of the persons admitted in 1970 declared that they would enter the labour force. The other 47.4 p.c. were wives, children and other dependants or were retired persons. Of the male workers 34.3 p.c. were classed as managerial, professional and technical, 6.8 p.c. were clerical workers, 6.1 p.c. were in service and recreation occupations, 36.8 p.c. were in manufacturing, mechanical and construction trades, 3.1 p.c. were general labourers and 4.0 p.c. were farmers. About 18.2 p.c. of the female immigrants entering the labour force intended to follow service and recreation occupations. These percentages were little changed from those for 1969.

### 8.—Intended Occupations of Male and Female Immigrants Admitted to Canada, 1969 and 1970

Intended Occupation	1969			1970		
	Males	Females	Total	Males	Females	Total
	No.	No.	No.	No.	No.	No.
<b>Workers</b>						
<b>Managerial (owners, managers, officials).....</b>	<b>2,418</b>	<b>148</b>	<b>2,566</b>	<b>2,873</b>	<b>222</b>	<b>3,095</b>
<b>Professional and Technical.....</b>	<b>17,176</b>	<b>9,707</b>	<b>26,883</b>	<b>14,940</b>	<b>7,472</b>	<b>22,412</b>
Professional Engineers—						
Civil.....	484	7	491	401	9	410
Mechanical.....	574	7	581	449	5	454
Industrial.....	457	17	474	415	16	431
Electrical.....	582	10	592	454	10	464
Mining.....	160	—	160	113	2	115
Chemical.....	242	7	249	175	8	183
Other.....	186	6	192	128	1	129
Physical Scientists—						
Chemists.....	465	74	539	352	53	405
Geologists.....	297	12	309	304	9	313
Physicists.....	171	13	184	143	9	152
Other.....	23	1	24	13	1	14
Biologists and Agricultural Professionals—						
Biological scientists.....	263	101	364	189	70	259
Veterinarians.....	47	3	50	53	5	58
Other.....	184	22	206	150	24	174

**8. - Intended Occupations of Male and Female Immigrants Admitted to Canada,  
1969 and 1970—continued**

Intended Occupation	1969			1970		
	Males	Females	Total	Males	Females	Total
	No.	No.	No.	No.	No.	No.
<b>Workers—continued</b>						
<b>Professional and Technical—concluded</b>						
Teachers—						
Professors, principals.....	2,063	335	2,398	1,624	262	1,886
School teachers.....	2,849	3,073	5,922	2,091	2,066	4,157
Other instructors.....	80	86	166	110	91	201
Health Professionals—						
Physicians, surgeons.....	1,138	209	1,347	959	154	1,113
Dentists.....	76	16	92	67	5	72
Nurses, graduate.....	125	3,123	3,248	94	2,180	2,274
Therapists.....	34	128	162	37	118	155
Osteopaths, chiropractors.....	1	—	1	2	1	3
Pharmacists.....	57	38	95	51	30	81
Medical and dental technicians.....	444	525	969	399	506	905
Other.....	65	358	423	74	360	434
Law Professionals.....	58	5	63	59	8	67
Religion Professionals.....	306	31	337	344	23	367
Artists, Writers and Musicians—						
Commercial artists.....	104	31	135	94	35	129
Art teachers.....	60	50	110	70	53	123
Authors, editors, journalists.....	221	62	283	213	82	295
Musicians, music teachers.....	149	96	245	196	100	296
Other Professionals—						
Architects.....	142	12	154	129	9	138
Draughtsmen.....	840	104	944	931	98	1,029
Surveyors.....	143	2	145	151	1	152
Actuaries, statisticians.....	403	81	484	337	74	411
Economists.....	288	38	326	264	35	299
Computer programmers.....	27	2	29	22	3	25
Accountants, auditors.....	473	31	504	396	26	422
Dietitians.....	11	59	70	9	50	59
Social workers.....	184	237	421	225	212	437
Librarians.....	76	120	196	47	104	151
Interior decorators.....	81	38	119	62	49	111
Photographers.....	128	16	144	125	18	143
Science technicians.....	1,736	224	1,960	1,716	237	1,953
Miscellaneous.....	679	297	976	703	260	963
<b>Clerical.....</b>	<b>3,696</b>	<b>8,526</b>	<b>12,222</b>	<b>3,542</b>	<b>8,601</b>	<b>12,143</b>
Bookkeepers, cashiers.....	742	897	1,639	767	828	1,595
Storekeepers, shipping clerks.....	209	17	226	288	22	310
Stenographers, typists.....	99	5,432	5,531	116	5,414	5,530
Other.....	2,646	2,180	4,826	2,371	2,337	4,708
<b>Transportation.....</b>	<b>705</b>	<b>5</b>	<b>710</b>	<b>629</b>	<b>3</b>	<b>632</b>
Aircraft operators.....	85	1	86	62	—	62
Railway operators.....	13	—	13	9	—	9
Water transport.....	137	—	137	114	—	114
Road transport.....	461	3	464	436	3	439
Other.....	9	1	10	8	—	8
<b>Communication.....</b>	<b>65</b>	<b>157</b>	<b>222</b>	<b>95</b>	<b>116</b>	<b>211</b>
<b>Commercial.....</b>	<b>2,117</b>	<b>627</b>	<b>2,744</b>	<b>1,950</b>	<b>649</b>	<b>2,599</b>
Auctioneers, canvassers.....	8	4	12	16	—	16
Pedlars, commercial travellers.....	572	42	614	446	29	475
Sales clerks, salesmen.....	1,536	589	2,116	1,485	617	2,102
Other.....	1	1	2	3	3	6
<b>Financial.....</b>	<b>513</b>	<b>30</b>	<b>543</b>	<b>412</b>	<b>19</b>	<b>431</b>
<b>Service and Recreation.....</b>	<b>3,560</b>	<b>5,500</b>	<b>9,060</b>	<b>3,146</b>	<b>4,706</b>	<b>7,852</b>
Protective service.....	156	—	156	138	6	144
Cooks.....	1,141	151	1,292	1,103	126	1,229
Domestic servants.....	426	3,381	3,807	238	2,747	2,985

### 8.—Intended Occupations of Male and Female Immigrants Admitted to Canada, 1969 and 1970—concluded

Intended Occupation	1969			1970		
	Males	Females	Total	Males	Females	Total
	No.	No.	No.	No.	No.	No.
<b>Workers—concluded</b>						
<b>Service and Recreation—concluded</b>						
Nurses' aides.....	160	764	924	191	649	840
Waiters, porters.....	843	247	1,090	778	304	1,082
Athletes, entertainers.....	151	94	245	131	77	208
Other.....	683	863	1,546	567	797	1,364
<b>Farmers.....</b>	<b>2,208</b>	<b>75</b>	<b>2,283</b>	<b>2,078</b>	<b>51</b>	<b>2,129</b>
<b>Loggers and Related Workers.....</b>	<b>115</b>	<b>—</b>	<b>115</b>	<b>83</b>	<b>—</b>	<b>83</b>
<b>Fishermen, Hunters, Trappers.....</b>	<b>17</b>	<b>—</b>	<b>17</b>	<b>28</b>	<b>—</b>	<b>28</b>
<b>Miners, Well Drillers.....</b>	<b>389</b>	<b>—</b>	<b>389</b>	<b>271</b>	<b>1</b>	<b>272</b>
<b>Construction.....</b>	<b>5,956</b>	<b>8</b>	<b>5,964</b>	<b>5,997</b>	<b>4</b>	<b>6,001</b>
Carpenters.....	1,351	1	1,352	1,551	—	1,551
Plumbers.....	580	1	581	511	1	512
Electricians.....	1,189	1	1,190	1,165	2	1,167
Painters, glaziers.....	454	1	455	553	1	554
Bricklayers, stonemasons.....	1,245	2	1,247	1,256	—	1,256
Cement and concrete workers.....	44	—	44	71	—	71
Plasterers, lathers.....	110	—	110	117	—	117
Sheet metal workers.....	191	2	193	200	—	200
Other (excl. labourers).....	792	—	792	573	—	573
<b>Manufacturing and Mechanical.....</b>	<b>14,049</b>	<b>3,430</b>	<b>17,479</b>	<b>13,100</b>	<b>2,995</b>	<b>16,095</b>
Food workers.....	637	28	665	588	27	615
Rubber workers.....	21	—	21	11	—	11
Leather workers.....	142	12	154	150	16	166
Textile workers.....	116	83	199	143	63	206
Tailors, furriers.....	931	2,976	3,907	764	2,482	3,246
Woodworkers, sawyers.....	1,052	8	1,060	891	4	895
Paper and chemical workers.....	71	9	80	61	8	69
Printers, bookbinders.....	329	32	361	335	21	356
Furnacemen, moulders.....	177	2	179	145	2	147
Jewellers, watchmakers.....	194	8	202	152	7	159
Machinists.....	4,281	83	4,364	4,109	98	4,207
Mechanics, repairmen.....	4,297	12	4,309	4,144	5	4,149
Electrical, electronic workers.....	766	50	816	634	55	689
Painters (excl. construction).....	181	1	182	136	2	138
Clay, glass, stone workers.....	101	8	109	110	8	118
Stationary engineers.....	232	1	233	204	3	207
Freight handlers.....	44	—	44	34	—	34
Other.....	477	117	594	489	104	593
<b>Labourers.....</b>	<b>1,670</b>	<b>348</b>	<b>2,018</b>	<b>1,591</b>	<b>23</b>	<b>1,614</b>
<b>Not Stated.....</b>	<b>584</b>	<b>550</b>	<b>1,134</b>	<b>1,188</b>	<b>1,028</b>	<b>2,216</b>
<b>Totals, Workers.....</b>	<b>55,238</b>	<b>29,111</b>	<b>84,349</b>	<b>51,923</b>	<b>25,800</b>	<b>77,723</b>
<b>Non-workers</b>						
Wives.....	—	27,389	27,389	—	25,361	25,361
Children.....	20,003	18,751	38,754	17,853	16,640	34,493
Other.....	4,766	6,273	11,039	4,481	5,655	10,136
<b>Totals, Non-workers.....</b>	<b>24,769</b>	<b>52,413</b>	<b>77,182</b>	<b>22,334</b>	<b>47,656</b>	<b>69,990</b>
<b>Totals, Immigrants.....</b>	<b>80,007</b>	<b>81,524</b>	<b>161,531</b>	<b>74,257</b>	<b>73,456</b>	<b>147,713</b>

**Deportations.**—Deportations by cause and nationality are shown in Table 9 for the years 1966-70. Persons who have not yet acquired domicile (five years of residence in Canada as landed immigrants) may be deported if they fall into prohibited classes at time of admission or within five years of admission, if they have engaged in commercialized



vice, have been convicted under the Criminal Code or have become inmates of prisons, or have gained admission by fraudulent means. The causes that may lead to deportation are narrowed after a person has acquired domicile. A person not a citizen may be deported regardless of length of residence if he is found to be a member of a subversive organization or engages in subversive activities, or if he has been convicted of an offence involving disloyalty to the Queen, or if he has, outside of Canada, engaged in activities detrimental to the security of Canada. A Canadian citizen cannot be deported.

### 9.—Deportations,<sup>1</sup> by Cause and Nationality, 1966-70

Cause and Nationality	1966	1967	1968	1969	1970
Cause	No.	No.	No.	No.	No.
Mental and physical.....	62	80	58	75	92
Public charges.....	11	12	19	10	13
Criminality.....	257	419	595	577	763
Misrepresentation <sup>2</sup> and stealth.....	593	600	1,124	1,197	1,477
Other.....	96	267	107	95	159
<b>Totals, Deportations.....</b>	<b>1,019</b>	<b>1,378</b>	<b>1,903</b>	<b>1,954</b>	<b>2,504</b>
Nationality					
British.....	97	118	149	135	109
United States.....	318	471	835	804	1,140
Other.....	604	789	919	1,015	1,255

<sup>1</sup> Excludes rejections and persons refused admission.

<sup>2</sup> Includes deserting seamen deported.

## Section 3.—Emigration Statistics

Emigration from Canada is an important factor tending to offset to some extent present and past immigration activities. The major outward movement has always, of course, been to the United States and that movement, both of native-born Canadians and of Europeans who originally migrated to Canada, has attained considerable proportions at certain periods. No Canadian statistics on emigration are available but Table 10 gives figures taken from the annual reports of the Immigration and Naturalization Service of the United States Department of Justice. These figures show the numbers of persons entering the United States from Canada during the years ended June 30, 1961-70 with the expressed intention of establishing permanent residence in that country. They do not include persons travelling for pleasure, even for extended periods of time, holders of border-crossing cards (normally issued to persons living in border areas of Canada but working in the United States) or casual tourist crossings in these same areas.

Of the 13,804 Canadian-born persons entering the United States in the year ended June 30, 1970 with the intention of remaining permanently, 6,243 were males and 7,561 females. Nearly one fifth, or 2,703, of the total native-born emigrants were males in the productive age group, 20-59 years. By occupation, the largest group of the total of 13,804 native-born persons was the professional or technical group which numbered 1,476; clerical and kindred workers numbered 622, and craftsmen or foremen numbered 608. On the other hand, 9,522 persons, or 69.0 p.c. of the total, were classed as housewives, children and others with no reported occupation. Altogether, 48.2 p.c. of the total were persons under 20 years of age.

Of the 26,850 persons entering the United States from Canada claiming Canada as country of last permanent residence—which of course includes native-born persons and those born in other countries who have resided in Canada—the Immigration and Naturalization

Service of the United States Department of Justice lists 4,573 as professional, technical and kindred workers, 2,258 as craftsmen, foremen and kindred workers and 1,447 as clerical and kindred workers. Housewives, children and others with no reported occupation accounted for 14,346 or 53.4 p.c. of the total.

**10.—Canadian-Born Persons Entering the United States from Canada and Elsewhere, and All Persons Entering the United States from Canada, Years Ended June 30, 1961-70**

NOTE.—Includes only persons who have declared their intention of remaining permanently in the United States when applying for a visa (see text above). SOURCE: Immigration and Naturalization Service, United States Department of Justice.

Year	Entering U.S. from Canada		Canadian-Born Entering U.S. from Elsewhere	Year	Entering U.S. from Canada		Canadian-Born Entering U.S. from Elsewhere
	Canadian-Born	All Persons			Canadian-Born	All Persons	
	No.	No.	No.		No.	No.	No.
1961.....	31,312	47,470	726	1966.....	27,707	37,273	651
1962.....	29,569	44,272	808	1967.....	22,729	34,768	713
1963.....	35,320	50,509	683	1968.....	27,189	41,716	473
1964.....	37,351	51,114	723	1969.....	18,196	29,303	386
1965.....	37,519	50,035	808	1970.....	13,466	26,850	338

## PART II.—CANADIAN CITIZENSHIP

### Section 1.—The Canadian Citizenship Act

The Canadian Citizenship Act, which came into force on Jan. 1, 1947\* replacing previous Naturalization Acts, created the distinct nationality of a "Canadian citizen" to be recognized throughout the world and it provided a means whereby those non-Canadian British subjects and aliens who were permanently residing in Canada or those who might subsequently immigrate to Canada could apply for the grant of Canadian citizenship. Administration of Canadian citizenship is under the jurisdiction of the Department of the Secretary of State, Citizenship Registration Branch.

Over the years the Citizenship Act has undergone several amendments, the latest on July 7, 1967. The provisions of the Act, including the 1967 amendments, are outlined briefly in the following paragraphs.

**Natural-Born Canadian Citizens, Born before Jan. 1, 1947.**—The Act conferred natural-born status upon two categories of persons in being on Jan. 1, 1947. These were (1) those born in Canada or on a Canadian ship or aircraft and who were not aliens on Jan. 1, 1947; and (2) those born of Canadian fathers outside of Canada who were not aliens on Jan. 1, 1947 and were either minors on that date or had already entered Canada for permanent residence.

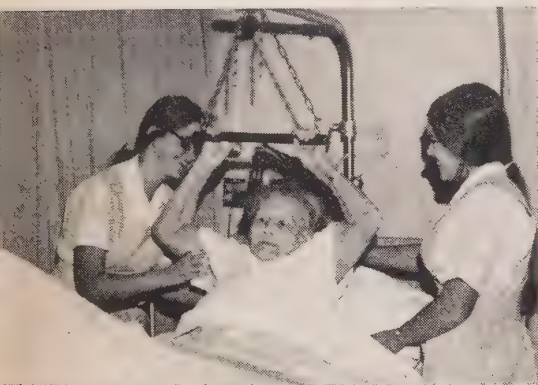
The Act provides that a person born abroad who was a minor on Jan. 1, 1947 will automatically cease to be a Canadian citizen on his 24th birthday or on Jan. 1, 1954, whichever is the later date, unless he has his place of domicile in Canada at such date or has, before such date and after reaching the age of 21 years, filed a declaration of retention of Canadian citizenship.

\* Naturalization procedures and events leading to the passing of the Canadian Citizenship Act are given in the 1951 Year Book, pp. 153-155.

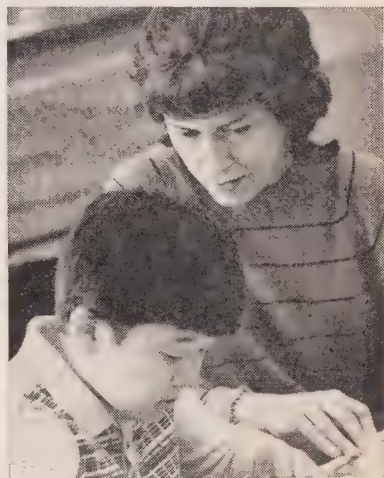
*In innumerable ways and wherever they are needed, time and talents are voluntarily given by people of all ages who are concerned with the betterment of life for all within the community.*

*Many under-privileged and fatherless boys are given a new outlook and a sense of security by a "Big Brother".* →

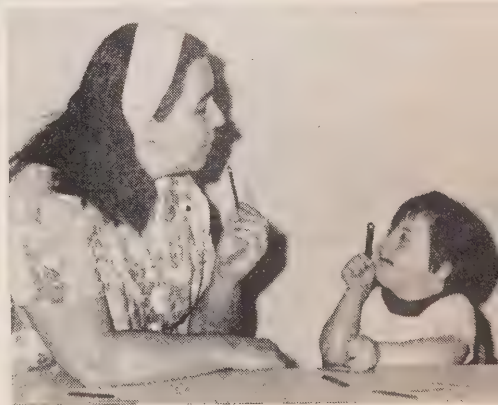
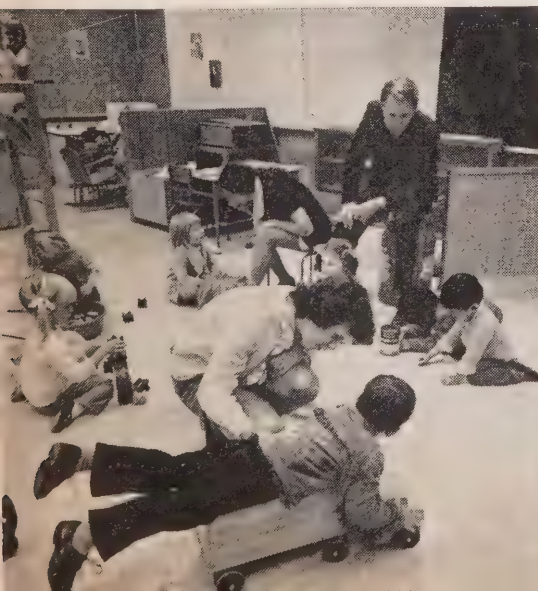
*Teen-age girls are happy to spend their summer holidays assisting in hospitals.* ↓



*Three- and four-year-olds with speaking, learning and playing problems respond to attentions given by young volunteers.* ↓



*A volunteer teacher's aid helps a newly arrived Japanese student with his English.*



*A service club volunteer works with a mentally retarded child, teaching her to recognize colours.*



**Natural-Born Canadian Citizens, Born after Dec. 31, 1946.**—A person born outside of Canada subsequent to that date, whose responsible parent is considered a Canadian citizen pursuant to the terms of the Canadian Citizenship Act, is a Canadian if his birth is registered with the Registrar of Canadian Citizenship within two years of its occurrence or within such extended period as the Minister may authorize in special cases.

A person who becomes a natural-born Canadian citizen in such a manner will automatically cease to be a Canadian citizen if he fails to file a declaration of retention prior to his 24th birthday or does not have his place of domicile in Canada upon that date.

**Newfoundland and Canadian Citizenship.**—On Apr. 1, 1949, Newfoundland became the tenth province of Canada and every person born therein or naturalized or every British subject who had domicile in Newfoundland on that date or every woman who married a citizen of Newfoundland and took up residence there before Apr. 1, 1949 became a Canadian citizen. They acquired the right of conferring Canadian citizenship by descent to their children born outside of Newfoundland in the same manner as those who had previously become Canadians. Persons born outside of Newfoundland to Newfoundland parents are natural-born Canadian citizens provided they were either minors on Apr. 1, 1949 or had before that date been lawfully admitted to Canada or Newfoundland for permanent residence. However, a person who was a minor on Apr. 1, 1949, ceased to be a Canadian on his 24th birthday or on July 1, 1968, whichever is the later date, unless he has his place of domicile in Canada at such date or has before such date, and after reaching the age of 21 years, filed a declaration of retention of Canadian citizenship. A person born outside of Canada to Newfoundland parents after Mar. 31, 1949 is a natural-born Canadian if his birth is registered with the Registrar of Canadian Citizenship within two years of its occurrence or within such extended period as the Minister may authorize in special cases. A person who becomes a natural-born Canadian in such a manner will automatically cease to be a Canadian citizen if he fails to file a declaration of retention prior to his 24th birthday or does not have his place of domicile in Canada on that date.

**Canadian Citizens other than Natural-Born.**—Before the 1953 amendments to the Citizenship Act, the only persons who acquired Canadian citizenship on Jan. 1, 1947 through the transitional clauses of Sect. 9 were persons who were naturalized in Canada before that date, British subjects who had Canadian domicile at the commencement of the Act and women lawfully admitted to Canada and married prior to Jan. 1, 1947 whose husbands would have qualified as Canadian citizens if the Act had come into force before the date of marriage. Sect. 9 was amended on June 1, 1953, so that a British subject who had his place of domicile in Canada for at least 20 years immediately before Jan. 1, 1947 need not comply with the requirements of Canadian domicile provided he was not under an order of deportation on Jan. 1, 1947.

**Acquisition of Canadian Citizenship by Aliens or British Subjects.**—An adult non-Canadian British subject or an alien who wishes to become a Canadian must formally file an application for citizenship. The non-Canadian British subject may file an application direct with the Registrar of Canadian Citizenship, whereas an alien must file an application through his local court, or through one of the special citizenship courts now established or, if he lives more than 50 miles from a court, he may mail his application to the Registrar of Canadian Citizenship in Ottawa, who will file it with the appropriate court. After the application has been 'posted' for three months, he shall appear before the court for examination. In either case the same requirements are generally applicable:—

- (1) He must have resided in Canada for 12 of the 18 months immediately preceding the date of his application.
- (2) He must have been lawfully admitted to Canada for permanent residence and either have acquired Canadian domicile before July 7, 1967, or have resided in Canada for five of the eight years immediately preceding the filing of his application. Persons living in Canada before obtaining "landed immigrant" status may count half of each full year before landing

toward the residence qualification. The wife of a Canadian needs only to be admitted for permanent residence and reside in Canada for one year.

- (3) He must be of good character and not under an order of deportation.
- (4) He must have an adequate knowledge of either English or French or, alternatively, he is the spouse, widow or widower of a Canadian or, either he was 40 or more years of age at the time of lawful admission and has resided in Canada for more than 10 years or he was less than 40 at the time of admission and has resided continuously in Canada for more than 20 years.
- (5) He must have an adequate knowledge of the responsibilities and privileges of citizenship.
- (6) He must intend to comply with the Oath of Allegiance and to have his place of domicile permanently in Canada.

At the conclusion of a court hearing, the decision of the court is forwarded to the Minister responsible for the administration of the Canadian Citizenship Act. If the decision is favourable and a certificate of Canadian Citizenship is granted by the Minister, it is forwarded to the clerk of the court who shall inform the applicant of the date and time he is to appear before the court to take the Oath of Allegiance, renounce his previous nationality and receive his certificate. Where a court finds that an applicant does not possess the required qualifications to be granted citizenship, the Minister, upon receipt of the decision, will so advise the applicant and give him notice that he may, within 30 days of receipt of such notice, appeal the decision to the Citizenship Appeal Court, which is the Trial Division of the Federal Court of Canada. If a court rejects an application and this decision is upheld by the Citizenship Appeal Court or if an application is refused by the Minister, the applicant has the right to file a new application two years after the date of rejection.

**Status of Married Women.**—The Canadian Citizenship Act places no disabilities upon the married woman. She neither acquires nor does she lose Canadian citizenship by marriage. In order to acquire Canadian citizenship she must apply in exactly the same manner as does a man. The Canadian Citizenship Act also enables a woman married to an alien whose nationality she acquired upon marriage to divest herself of Canadian citizenship by the filing of a declaration of renunciation. Finally, it provides a means whereby a woman, who had become an alien through marriage prior to Jan. 1, 1947, may acquire the Canadian status she would otherwise have assumed on that date.

**Status of Minor Children.**—Alien and British subject minor children do not automatically become Canadians with their parents. After one parent has become a Canadian, the responsible parent of that child, his mother if she has *de facto* custody of the child or maintains him, the tutor or the legal guardian of the child may apply for citizenship on the child's behalf. Application is made to the Registrar of Canadian Citizenship, Ottawa. Provision is also made in the Citizenship Act for the granting of a certificate of citizenship to a minor child in special circumstances.

**Loss of Canadian Citizenship.**—Canadian citizenship may be lost in the following manner:—

- (1) A Canadian citizen who when outside of Canada and not under disability acquires by a voluntary and formal act other than marriage the nationality or citizenship of a country other than Canada. This does not apply if the country is at war with Canada at the time of acquisition but in such a case the Minister may order that he cease to be a Canadian citizen. The purpose of this is to hold the person, if deemed necessary, to his obligations as a Canadian.
- (2) A natural-born Canadian citizen who is a dual national by birth or through naturalization, and any Canadian citizen on marriage, may after attaining the age of 21 cease to be a Canadian citizen through the making of a declaration of renunciation thereof.
- (3) A Canadian citizen who under the law of another country is a national or citizen of such country and who serves in the armed forces of such country when it is at war with Canada. This does not apply if the Canadian citizen became a national or citizen of such country when it was at war with Canada.

Prior to the 1967 amendments of the Citizenship Act, a person, other than a natural-born Canadian, who since becoming a Canadian had resided outside of Canada for 10 consecutive years automatically ceased to be a Canadian; this provision for automatic loss has been removed from the Citizenship Act.

*Loss of Citizenship by Revocation.—Applicable Both to Non-natural-Born and to Natural-Born Canadians.*—Prior to the 1967 amendments of the Citizenship Act, loss of Canadian citizenship by revocation was limited under certain provisions of the Act only to non-natural-born Canadians. This discriminatory distinction between non-natural-born and natural-born Canadians has been removed from the Citizenship Act and the following substituted: Canadian citizenship may be revoked by the Governor in Council if, upon a report from the Minister, he is satisfied that *any Canadian citizen* has, when not under a disability, (1) acquired voluntarily, when in Canada, the citizenship of a foreign country (other than by marriage); (2) taken or made an oath, affirmation or other declaration of allegiance to a foreign country; (3) made a declaration renouncing his Canadian citizenship; or (4) obtained Canadian citizenship by false representation or fraud or by concealment of material circumstances.

*Doubt as to Loss of Citizenship.*—Where in the opinion of the Minister a doubt exists as to whether a person has ceased to be a Canadian citizen, the Minister may refer the question to the commission referred to in the Citizenship Act for a ruling and the decision of the commission or the court, as the case may be, shall be final.

## Section 2.—Canadian Citizenship Statistics

The decennial Census of Canada requires that each person state the country to which he owed allegiance and had citizenship rights as at June 1 of the census year. Citizenship of the population, by province, as at the latest census date, June 1, 1971, will be given in Appendix II of this volume if available at the time of going to press. According to the 1961 Census, less than 6 p.c. of the Canadian population on June 1, 1961 reported a country of citizenship other than Canada.

**Citizenship Certificates Issued and Granted.**—Citizenship certificates "issued", as shown in Table 1, are those issued for various reasons to persons who were already Canadian citizens; certificates "granted" means that the holders became Canadian citizens by the grant of such certificate.

### 1.—Citizenship Certificates Issued and Granted, by Status of Recipient, 1969 and 1970

Certificates		1969	1970	Certificates		1969	1970
		No.	No.			No.	No.
<b>Issued—</b>				<b>Granted—concluded</b>			
To Canadians by—				To Aliens.....			
Birth.....				Adults.....			
Naturalization.....				Minors.....			
Marriage.....				Adopted or legitimated.....			
Domicile.....				Re-acquisition of status.....			
To remove doubt.....				<b>Totals, Granted.....</b>			
Replacements.....				<b>Totals, Issued and</b>			
Minutaries.....				<b>Granted.....</b>			
<b>Totals, Issued.....</b>		<b>109,395</b>	<b>92,545</b>	<b>Miscellaneous—</b>			
<b>Granted—</b>				Retention.....			
To British.....				Registration of births abroad.....			
Adults.....				Loss by alienation <sup>1</sup> .....			
Minors.....							
Adopted or legitimated.....							

<sup>1</sup> Only those cases reported to the Citizenship Branch by posts abroad.



**Characteristics of Persons Granted Citizenship Certificates in 1970.**—Since 1953, comparable statistics are available showing the characteristics of persons granted citizenship certificates; such characteristics include age, marital status, occupation, period of immigration, residence and previous nationality. The number of applicants fluctuates from year to year but it is known that about 40 p.c. of the immigrants who entered Canada during the past ten years who are eligible for Canadian citizenship have become Canadians.

Of the 57,556 persons granted citizenship in 1970, fewer than 2 p.c. had immigrated to Canada before 1931, 6 p.c. in the period 1931-50, 42 p.c. in the period 1951-60 and 50 p.c. after 1960. Regionally, these new citizens were distributed as follows: 2 p.c. in the Atlantic Provinces, 23 p.c. in Quebec, 48 p.c. in Ontario, 12 p.c. in the Prairie Provinces and 15 p.c. in British Columbia. Almost 89 p.c. of them resided in urban centres.

About 30 p.c. of the persons naturalized in 1970 previously owed allegiance to a Commonwealth country, 15 p.c. were former citizens of Italy, 7 p.c. of Germany, 6 p.c. of Greece and 4 p.c. of each of the Netherlands, Yugoslavia and Portugal. Most of the persons designated as "stateless" were born in Poland, the Soviet Union, Yugoslavia, Hungary, Germany, Czechoslovakia or Romania.

Among the males in the labour force naturalized in 1970, craftsmen, production process and related workers occupations were reported by 40 p.c., 20 p.c. were in professional and technical occupations, 12 p.c. were in service and recreation occupations, labourers accounted for 5 p.c., managerial occupations for 9 p.c. and clerical workers and salesmen for 4 p.c. each. Of the females, 44 p.c. were homemakers and, among those employed outside the home, 27 p.c. were in clerical occupations, 25 p.c. were in the craftsmen, production process and related workers occupation group, and 18 p.c. were in service and recreation occupations.

## 2.—Persons Granted Citizenship Certificates in 1969 and 1970, by Province of Residence, and Period of Immigration to Canada

Year and Residence	Period of Immigration						Born in Canada	Total
	Before 1931	1931-1940	1941-1950	1951-1960	1961-1965	1966-1969		
	No.	No.	No.	No.	No.	No.	No.	No.
<b>1969</b>								
<b>Residing in Canada.....</b>	<b>944</b>	<b>204</b>	<b>3,427</b>	<b>29,295</b>	<b>23,299</b>	<b>2,443</b>	<b>243</b>	<b>59,765</b>
Newfoundland.....	—	2	8	52	50	11	—	123
Prince Edward Island.....	—	—	5	19	13	1	—	38
Nova Scotia.....	8	7	50	310	186	21	8	590
New Brunswick.....	3	—	22	93	81	20	1	220
Quebec.....	109	14	332	4,967	7,117	425	32	12,996
Ontario.....	318	76	1,808	14,891	11,411	1,019	78	29,601
Manitoba.....	74	7	130	867	554	101	12	1,745
Saskatchewan.....	83	7	77	465	308	65	21	1,026
Alberta.....	128	42	295	2,432	1,021	173	48	4,139
British Columbia.....	220	48	697	5,063	2,520	599	43	9,190
Yukon and Northwest Territories	1	1	3	46	38	8	—	97
<b>Residing Outside Canada.....</b>	<b>2</b>	<b>—</b>	<b>12</b>	<b>58</b>	<b>17</b>	<b>26</b>	<b>20</b>	<b>135</b>
<b>Totals, Naturalized.....</b>	<b>946</b>	<b>204</b>	<b>3,439</b>	<b>29,263</b>	<b>23,316</b>	<b>2,469</b>	<b>263</b>	<b>59,900</b>

## 2.—Persons Granted Citizenship Certificates in 1969 and 1970, by Province of Residence, and Period of Immigration to Canada—concluded

Year and Residence	Period of Immigration						Born in Canada	Total
	Before 1931	1931-1940	1941-1950	1951-1960	1961-1965	1966-1970		
1970	No.	No.	No.	No.	No.	No.	No.	No.
<b>Residing in Canada</b> .....	<b>905</b>	<b>160</b>	<b>3,078</b>	<b>24,214</b>	<b>25,357</b>	<b>3,359</b>	<b>386</b>	<b>57,459</b>
Newfoundland.....	1	—	4	35	76	12	—	128
Prince Edward Island.....	1	—	6	43	12	4	2	68
Nova Scotia.....	8	3	65	277	231	37	14	635
New Brunswick.....	1	1	25	73	87	13	3	203
Quebec.....	94	18	295	4,847	7,072	623	57	13,006
Ontario.....	327	74	1,522	11,831	12,352	1,418	133	27,657
Manitoba.....	67	7	134	880	578	99	16	1,781
Saskatchewan.....	57	4	68	261	344	62	29	825
Alberta.....	154	28	349	2,131	1,328	242	43	4,275
British Columbia.....	195	25	603	3,803	3,220	838	88	8,772
Yukon and Northwest Territories	—	—	7	33	57	11	1	109
<b>Residing Outside Canada</b> .....	<b>1</b>	<b>—</b>	<b>3</b>	<b>20</b>	<b>13</b>	<b>40</b>	<b>20</b>	<b>97</b>
<b>Totals, Naturalized</b> .....	<b>906</b>	<b>160</b>	<b>3,081</b>	<b>24,234</b>	<b>25,370</b>	<b>3,399</b>	<b>406</b>	<b>57,556</b>

## 3.—Persons Granted Citizenship Certificates in 1969 and 1970, by Age Group, Occupation and Sex

Age Group and Occupation	1969			1970		
	Males	Females	Total	Males	Females	Total
	No.	No.	No.	No.	No.	No.
<b>Age Group</b>						
0 - 14 years.....	2,746	2,662	5,408	2,719	2,542	5,261
15 - 19 ".....	2,760	2,442	5,202	2,535	2,297	4,832
20 - 29 ".....	6,756	6,577	13,333	6,875	6,371	13,246
30 - 39 ".....	8,822	7,916	16,738	8,478	7,576	16,054
40 - 49 ".....	5,918	5,456	11,374	5,517	5,042	10,559
50 - 59 ".....	2,122	2,350	4,472	2,049	2,280	4,329
60 - 69 ".....	1,082	1,551	2,633	1,059	1,452	2,511
70+ ".....	280	460	740	266	498	764
<b>Totals</b> .....	<b>30,486</b>	<b>29,114</b>	<b>59,900</b>	<b>29,493</b>	<b>28,658</b>	<b>57,556</b>
<b>Occupation</b>						
Managerial.....	1,791	235	2,026	1,992	264	2,256
Professional and technical.....	4,128	1,850	5,978	4,568	2,190	6,758
Clerical.....	1,045	2,998	4,093	883	2,849	3,732
Transport and communication.....	632	65	697	585	53	638
Sales.....	1,006	563	1,569	859	459	1,318
Service and recreation.....	2,600	2,222	4,822	2,763	1,906	4,669
Farmers and farm workers.....	611	38	649	576	17	593
Fishermen, trappers and loggers.....	87	1	88	69	3	72
Miners, quarrymen and related workers.....	186	—	186	118	1	119
Craftsmen, production process and related workers	10,231	2,823	13,054	9,058	2,643	11,701
Labourers, <i>n.e.s.</i> .....	1,426	74	1,500	1,302	82	1,384
Homemakers.....	—	13,303	13,303	—	12,462	12,462
No occupation (including students, retired, etc.)..	4,220	2,846	7,066	3,948	2,553	6,501
Children under 14 years of age.....	2,306	2,258	4,564	2,685	2,510	5,195
Not stated <sup>1</sup> .....	167	138	305	92	66	158

<sup>1</sup> Mainly children over 14 years of age.

## 4.—Persons Granted Citizenship Certificates in 1969 and 1970, by Country of Birth

Country of Birth	1969	1970	Country of Birth	1969	1970
	No.	No.		No.	No.
Algeria.....	98	102	Morocco.....	681	758
Argentina.....	100	70	Netherlands.....	3,263	2,453
Australia.....	139	146	Norway.....	149	109
Austria.....	667	552	Poland.....	2,196	2,012
Belgium.....	509	521	Portugal.....	2,598	2,315
Britain.....	11,417	10,951	Romania.....	507	362
Canada.....	390	405	South Africa.....	234	283
China.....	2,193	2,237	Spain.....	401	386
Czechoslovakia.....	271	314	Sweden.....	97	85
Denmark.....	591	451	Switzerland.....	255	322
Egypt.....	1,625	1,308	Turkey.....	306	288
Finland.....	520	460	Union of Soviet Socialist		
France.....	1,071	1,242	Republics <sup>2</sup> .....	974	856
Germany.....	4,611	3,939	United States.....	1,276	1,365
Greece.....	3,644	3,438	West Indies.....	1,181	1,251
Guyana.....	554	542	Yugoslavia.....	2,851	2,359
Hong Kong.....	403	665	Other.....	1,807	2,161
Hungary.....	1,465	1,325			
India.....	932	1,583	<b>Totals, All Countries.....</b>	<b>59,900</b>	<b>57,556</b>
Indonesia.....	55	66			
Ireland <sup>1</sup> .....	703	549	Commonwealth.....	16,213	17,141
Israel.....	342	251	Other Asia.....	3,494	3,780
Italy.....	8,111	8,318	Other Europe.....	35,828	32,204
Japan.....	148	167	South America.....	387	323
Lebanon.....	250	343	United States.....	1,276	1,365
Malta.....	315	246	Other.....	2,702	2,743

<sup>1</sup> Republic of Ireland and Northern Ireland.<sup>2</sup> Includes Baltic countries and the Ukraine.

## 5.—Persons Granted Citizenship Certificates in 1969 and 1970, by Country of Former Allegiance

Country of Former Allegiance	1969	1970	Country of Former Allegiance	1969	1970
	No.	No.		No.	No.
Commonwealth countries.....	17,015	17,151	Philippines.....	161	307
Austria.....	658	538	Poland.....	1,969	1,887
Belgium.....	450	510	Portugal.....	2,612	2,319
China.....	2,144	2,266	Romania.....	252	199
Czechoslovakia.....	175	234	Spain.....	404	382
Denmark.....	608	464	Sweden.....	110	102
Finland.....	525	462	Switzerland.....	259	321
France.....	1,192	1,406	Turkey.....	175	208
Germany.....	5,118	4,258	Union of South Africa.....	225	275
Greece.....	3,812	3,589	Union of Soviet Socialist		
Hungary.....	1,384	1,267	Republics <sup>1</sup> .....	734	677
Israel.....	764	486	United Arab Republic.....	1,358	1,148
Italy.....	8,241	8,412	United States.....	1,462	1,573
Japan.....	152	158	Yugoslavia.....	2,738	2,291
Lebanon.....	350	414	Other.....	806	965
Morocco.....	555	670			
Netherlands.....	3,333	2,497	<b>Totals, All Countries.....</b>	<b>59,900</b>	<b>57,556</b>
Norway.....	159	120			

<sup>1</sup> Includes Baltic countries and the Ukraine.



## CHAPTER V.—VITAL STATISTICS\*

### CONSPECTUS

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*The interpretation of the symbols used in the tables throughout the Year Book will be found on p. vii of this volume.*

Vital statistics provide a key to the interpretation of population development—a measure of the pace at which the population is growing, the rate at which women are marrying and reproducing, and the effect this has on the age and sex distribution of the population, as well as the relative importance of the diseases that cause death each year. Vital statistics constitute the record of births, deaths, marriages and divorces registered in the provinces and territories of Canada. The continuity of such data gives a constant guide to the planning, operation and evaluation of many national activities, particularly in the fields of public health, education, community planning and various types of business enterprise.

This Chapter gives a fairly detailed coverage of the vital statistics information available, gives life tables for males and females and presents a comparison of the principal Canadian vital statistics rates with those of other countries. In making international and interprovincial comparisons of birth, death and marriage rates, it is important to note that part of the differences observed over a period of years as between countries, provinces or local areas may be caused by differences in the sex and age distribution of the populations involved. Similarly, rates for any one area may be affected by changes in such distribution. The population data upon which vital statistics rates are computed are given on pp. 247-248. Births and deaths are classified by place of residence (births according to the residence of the mother) and marriages by place of occurrence.

The history of the collection of vital statistics in Canada is covered in the 1948-49 Year Book, pp. 185-188. Detailed information is given in *Vital Statistics* (Preliminary Report) (Catalogue No. 84-201), *Vital Statistics of Canada* (Catalogue No. 84-202), *Causes of Death* (Catalogue No. 84-203) and in other regular and special reports; in addition, certain unpublished data are available on request.

\* Revised in the Vital Statistics Section, Health and Welfare Division, Statistics Canada. This Chapter provides data for the year 1969, with comparisons for previous years where appropriate; principal vital statistics for 1970 will be available by the time this volume goes to press and may be found in Appendix III.

## Section 1.—Summary of Vital Statistics

Table 1 gives a summary for reference purposes of the principal vital statistics of the provinces and territories of Canada for five-year periods 1951-65 and for single years 1966-69. Table 2 shows similar data for urban centres having at least 20,000 population at the date of the 1966 Census for the year 1969 with comparative averages for 1961-65.

## 1.—Summary of Principal Vital Statistics, by Province, 1951-69

NOTE.—Figures for neonatal mortality (within the first four weeks of birth) are given on p. 269 and those for divorces on p. 278.

Province and Year	Live Births		Deaths		Natural Increase <sup>1</sup>		Infant Mortality <sup>2</sup>		Maternal Mortality		Marriages	
	No.	Rate <sup>3</sup>	No.	Rate <sup>3</sup>	No.	Rate <sup>3</sup>	No.	Rate <sup>4</sup>	No.	Rate <sup>5</sup>	No.	Rate <sup>3</sup>
<b>Newfoundland—</b>												
Av. 1951-55.....	13,101	34.1	2,926	7.6	10,175	26.5	598	45.6	24	18.3	2,836	7.4
" 1956-60.....	14,934	34.6	3,114	7.2	11,820	27.4	585	39.2	17	11.4	3,032	7.0
" 1961-65.....	15,104	31.8	3,142	6.6	11,962	25.2	538	35.6	7	4.5	3,331	7.0
1966.....	14,084	28.5	3,072	6.2	11,012	22.3	395	28.0	2	1.4	3,728	7.6
1967.....	12,844	25.7	3,117	6.2	9,727	19.5	367	28.6	3	2.3	4,021	8.0
1968.....	12,820	25.3	3,123	6.2	9,697	19.1	309	24.1	3	2.3	4,242	8.4
1969.....	13,000	25.3	3,005	5.8	9,995	19.5	278	21.4	—	—	4,279	8.3
<b>P.E. Island—</b>												
Av. 1951-55.....	2,720	27.2	923	9.2	1,797	18.0	88	32.4	2	8.1	623	6.2
" 1956-60.....	2,674	26.6	953	9.5	1,721	17.1	87	32.7	1	3.0	645	6.4
" 1961-65.....	2,767	25.7	1,006	9.3	1,761	16.4	78	28.1	1	2.9	672	6.2
1966.....	2,199	20.3	1,048	9.7	1,151	10.6	57	25.9	2	9.1	752	6.9
1967.....	2,047	18.8	1,038	9.5	1,009	9.3	48	23.4	—	—	802	7.4
1968.....	2,105	19.1	990	9.0	1,115	10.1	56	26.6	—	—	750	6.8
1969.....	2,009	18.3	1,007	9.2	1,002	9.1	45	22.4	—	—	868	7.9
<b>Nova Scotia—</b>												
Av. 1951-55.....	18,246	27.5	5,802	8.8	12,444	18.7	586	32.1	13	6.9	5,283	8.0
" 1956-60.....	19,097	26.9	6,062	8.5	13,035	18.4	559	29.3	9	4.7	5,289	7.4
" 1961-65.....	18,526	24.7	6,312	8.4	12,214	16.3	505	27.2	7	3.6	5,313	7.1
1966.....	15,220	20.1	6,478	8.6	8,742	11.5	384	25.2	2	1.3	5,833	7.7
1967.....	14,312	18.9	6,638	8.7	7,674	10.1	326	22.8	3	2.1	6,189	8.2
1968.....	13,774	18.1	6,610	8.7	7,164	9.4	296	21.5	6	4.4	6,284	8.3
1969.....	13,618	17.8	6,663	8.7	6,955	9.1	267	19.6	1	0.7	6,568	8.6
<b>New Brunswick—</b>												
Av. 1951-55.....	16,496	31.0	4,576	8.6	11,920	22.4	717	43.5	16	9.5	4,306	8.1
" 1956-60.....	16,567	29.0	4,640	8.1	11,927	20.9	567	34.2	8	4.6	4,357	7.6
" 1961-65.....	15,668	25.8	4,749	7.8	10,919	18.0	419	26.7	7	4.6	4,531	7.5
1966.....	12,722	20.6	4,771	7.7	7,951	12.9	306	24.1	4	3.1	5,165	8.4
1967.....	12,353	19.9	4,894	7.9	7,459	12.0	310	25.1	3	2.4	5,452	8.8
1968.....	11,607	18.6	4,905	7.9	6,702	10.7	235	20.2	6	5.2	5,389	8.6
1969.....	11,695	18.7	4,849	7.8	6,846	10.9	221	18.9	3	2.6	5,705	9.1
<b>Quebec—</b>												
Av. 1951-55.....	128,523	30.0	34,269	8.0	94,254	22.0	5,662	44.1	149	11.6	35,584	8.3
" 1956-60.....	139,844	28.6	35,714	7.3	104,130	21.3	5,000	35.8	105	7.5	36,798	7.5
" 1961-65.....	131,453	24.0	37,698	6.9	93,755	17.1	3,874	29.5	62	4.7	38,126	7.0
1966.....	109,878	19.0	38,680	6.7	71,198	12.3	2,776	25.3	58	5.3	44,411	7.7
1967.....	101,471	17.3	38,665	6.6	62,806	10.7	2,347	23.1	33	3.3	46,275	7.9
1968.....	96,622	16.3	39,537	6.7	57,085	9.6	2,097	21.7	36	3.7	46,004	7.8
1969.....	95,610	16.0	40,103	6.7	55,507	9.3	1,942	20.3	33	3.5	47,545	7.9
<b>Ontario—</b>												
Av. 1951-55.....	128,861	26.1	44,715	9.0	84,146	17.1	3,634	28.2	83	6.5	45,213	9.1
" 1956-60.....	152,688	26.4	49,431	8.5	103,257	17.9	3,741	24.5	65	4.2	46,482	8.0
" 1961-65.....	152,629	23.5	52,664	8.1	99,965	15.4	3,388	22.2	51	3.3	46,794	7.2
1966.....	131,942	19.0	54,171	7.8	77,771	11.2	2,669	20.2	36	2.7	54,571	7.8
1967.....	127,509	17.8	54,878	7.7	72,631	10.1	2,515	19.7	29	2.3	58,377	8.2
1968.....	126,257	17.3	55,552	7.6	70,705	9.7	2,396	19.0	22	1.7	62,109	8.5
1969.....	130,398	17.5	55,707	7.5	74,691	10.0	2,299	17.6	20	1.5	67,150	9.0

For footnotes, see end of table, p. 242.

## 1.—Summary of Principal Vital Statistics, by Province, 1951-69—concluded

Province or Territory and Year	Live Births		Deaths		Natural Increase <sup>1</sup>		Infant Mortality <sup>2</sup>		Maternal Mortality		Marriages	
	No.	Rate <sup>3</sup>	No.	Rate <sup>3</sup>	No.	Rate <sup>3</sup>	No.	Rate <sup>4</sup>	No.	Rate <sup>5</sup>	No.	Rate <sup>5</sup>
<b>Manitoba—</b>												
Av. 1951-55.....	21,321	26.4	6,775	8.4	14,546	18.0	675	31.7	15	7.0	7,104	8.8
" 1956-60.....	22,408	25.6	7,293	8.3	15,115	17.3	671	30.0	10	4.6	6,600	7.5
" 1961-65.....	22,137	23.4	7,637	8.1	14,500	15.3	553	25.0	8	3.6	6,674	7.1
1966.....	18,007	18.7	7,938	8.2	10,069	10.5	383	21.3	2	1.1	7,312	7.6
1967.....	17,180	17.8	7,629	7.9	9,551	9.9	371	21.6	3	1.7	7,942	8.2
1968.....	17,424	17.9	7,878	8.1	9,546	9.8	363	20.8	4	2.3	8,291	8.5
1969.....	17,809	18.2	8,040	8.2	9,769	10.0	388	21.8	5	2.8	8,864	9.1
<b>Saskatchewan—</b>												
Av. 1951-55.....	23,554	27.5	6,547	7.6	17,007	19.9	743	31.5	16	6.9	6,876	8.0
" 1956-60.....	24,046	26.9	6,753	7.5	17,293	19.4	634	26.3	9	3.8	6,395	7.1
" 1961-65.....	22,811	24.4	7,268	7.8	15,543	16.6	591	25.9	6	2.8	6,316	6.7
1966.....	19,037	19.9	7,427	7.8	11,610	12.1	461	24.2	9	4.7	6,987	7.3
1967.....	17,993	18.8	7,441	7.8	10,552	11.0	465	25.8	4	2.2	7,579	7.9
1968.....	18,197	19.0	7,498	7.8	10,699	11.2	468	25.7	3	1.6	7,747	8.1
1969.....	17,592	18.3	7,492	7.8	10,100	10.5	395	22.5	4	2.3	7,668	8.0
<b>Alberta—</b>												
Av. 1951-55.....	31,087	30.6	7,527	7.4	23,560	23.2	894	28.7	15	5.0	9,750	9.6
" 1956-60.....	36,920	30.6	8,329	6.9	28,591	23.7	940	25.5	13	3.5	10,230	8.5
" 1961-65.....	37,004	26.5	9,317	6.7	27,687	19.8	917	24.8	10	2.6	10,581	7.6
1966.....	30,592	20.9	9,077	6.6	20,915	14.3	640	20.9	6	1.9	11,879	8.1
1967.....	30,691	20.6	9,523	6.4	21,168	14.2	615	20.0	5	1.6	12,903	8.7
1968.....	30,149	19.8	9,963	6.5	20,186	13.3	607	20.1	8	2.7	13,640	8.9
1969.....	30,855	19.8	9,321	6.4	20,934	13.4	587	19.0	2	0.6	14,846	9.5
<b>British Columbia—</b>												
Av. 1951-55.....	31,347	25.1	12,233	9.8	19,114	15.3	856	27.3	17	5.4	11,131	8.9
" 1956-60.....	38,930	25.7	13,980	9.2	24,950	16.5	1,011	26.0	16	4.1	11,955	7.9
" 1961-65.....	36,753	21.5	15,236	8.9	21,517	12.6	843	22.9	10	2.7	11,927	7.0
1966.....	32,502	17.3	16,290	8.7	16,212	8.6	779	24.0	13	4.0	14,682	7.8
1967.....	32,899	16.9	16,170	8.3	16,729	8.6	703	21.4	5	1.5	16,026	8.2
1968.....	33,687	16.8	16,828	8.4	16,859	8.4	661	19.6	11	3.3	16,914	8.4
1969.....	35,383	17.1	17,377	8.4	18,006	8.7	641	18.1	9	2.5	18,284	8.8
<b>Yukon Territory—</b>												
Av. 1951-55.....	413	43.0	90	9.4	323	33.6	22	52.8	--	4.8	94	9.8
" 1956-60.....	505	39.4	91	7.1	414	32.3	22	43.6	--	4.0	109	8.5
" 1961-65.....	509	34.9	87	6.0	422	28.9	21	42.0	--	7.9	107	7.3
1966.....	369	25.7	82	5.7	287	20.0	20	54.2	--	--	94	6.5
1967.....	385	25.7	73	4.9	312	20.8	9	23.4	--	--	133	8.9
1968.....	370	24.7	84	5.6	286	19.1	11	29.7	--	--	170	11.3
1969.....	462	30.8	95	6.3	367	24.5	18	39.0	--	--	169	11.3
<b>Northwest Territories—</b>												
Av. 1951-55.....	666	40.1	284	17.1	382	23.0	78	117.1	2	36.0	115	6.9
" 1956-60.....	943	46.7	310	15.3	633	31.4	135	143.2	3	29.7	155	7.7
" 1961-65.....	1,174	45.9	250	9.8	924	36.1	109	92.9	1	5.1	154	6.0
1966.....	1,158	40.3	229	8.0	929	32.3	90	77.7	1	8.6	182	6.3
1967.....	1,210	41.7	217	7.5	993	34.2	75	62.0	--	--	180	6.2
1968.....	1,298	41.9	228	7.4	1,070	34.5	84	64.7	--	--	226	7.3
1969.....	1,216	38.0	218	6.8	998	31.2	68	55.9	--	--	237	7.4
<b>Canada—</b>												
Av. 1951-55.....	416,334	28.0	126,666	8.5	289,668	19.5	14,552	35.0	353	8.5	128,915	8.7
" 1956-60.....	469,555	27.6	136,669	8.0	332,886	19.6	13,953	29.7	255	5.4	132,047	7.8
" 1961-65.....	456,534	24.1	145,368	7.7	311,166	16.4	11,836	25.9	169	3.7	134,524	7.1
1966.....	387,710	19.4	149,863	7.5	237,847	11.9	8,960	23.1	135	3.5	155,596	7.8
1967.....	370,894	18.2	150,233	7.4	220,611	10.8	8,151	22.0	88	2.4	165,879	8.1
1968.....	364,310	17.6	153,196	7.4	211,114	10.2	7,583	20.8	99	2.7	171,766	8.3
1969.....	369,647	17.6	154,477	7.3	215,170	10.3	7,149	19.3	77	2.1	182,183	8.7

<sup>1</sup> Excess of births over deaths.<sup>2</sup> Deaths under one year of age; deaths within the first four weeks of birth

are given on p. 269.

<sup>3</sup> Per 1,000 population.<sup>4</sup> Per 1,000 live births.<sup>5</sup> Per 10,000 live births.



2.—Summary of Principal Vital Statistics for Incorporated Urban Centres of 20,000 Population or Over,<sup>1</sup> 1969 with Average for 1961-65

NOTE.—Birth, death and marriage rates cannot be computed for 1969 or the period 1961-65 since urban centre populations are not known for intercensal periods. Figures for certain urban places may not be comparable for the periods shown because of changes in area boundaries, particularly for those indicated by an asterisk (\*). Urban centres are designated in this table by the following abbreviations: c. = city, t. = town, v.l. = village, b. = borough, s.m. = suburban municipality, and d.m. = district municipality.

Province and Urban Centre	Live Births		Deaths		Infant Mortality <sup>2</sup>			Neonatal Mortality <sup>3</sup>			Marriages <sup>4</sup>	
	Av. 1961-65	1969	Av. 1961-65	1969	Av. 1961-65	1969		Av. 1961-65	1969		Av. 1961-65	1969
						No.	Rate <sup>5</sup>		No.	Rate <sup>5</sup>		
<b>Newfoundland—</b>												
Corner Brook, c.....	845	591	127	117	36.5	9	15.2	24.4	5	8.5	214	279
St. John's, c.....	1,966	1,835	542	577	22.4	28	15.3	15.4	22	12.0	730	959
<b>Prince Edward Island—</b>												
Charlottetown, c.*.....	417	297	232	227	36.9	8	26.9	23.0	6	20.2	157	199
<b>Nova Scotia—</b>												
Dartmouth, c.....	1,700	1,315	230	282	24.8	17	12.0	15.8	13	9.0	287	374
Glace Bay, t.....	400	213	218	213	26.9	9	22.5	25.4	6	15.0	162	174
Halifax, c.....	2,109	2,144	736	988	24.7	45	21.0	17.2	32	14.1	1,047	1,464
Sydney, c.....	841	585	297	249	25.4	4	7.5	15.9	2	3.7	265	292
<b>New Brunswick—</b>												
Fredericton, c.....	574	452	171	166	19.2	9	19.0	12.5	3	6.6	243	311
Moncton, c.....	1,045	800	313	328	19.9	11	12.8	12.6	7	8.1	307	541
Saint John, c.....	1,743	1,716	690	837	23.1	34	19.8	15.7	28	10.3	607	794
<b>Quebec—</b>												
Alma, c.....	615	387	80	104	31.5	12	31.0	25.0	11	28.4	156	215
Anjou, t.....	439	641	52	164	17.8	12	18.7	20.8	5	7.8	146	202
Cap de la Madeleine, c.....	640	437	159	161	29.6	3	13.2	20.9	3	9.9	218	272
Chicoutimi, c.....	373	577	194	116	48.8	6	37.2	31.8	3	6.7	173	359
Chicoutimi, c.....	895	591	194	104	43.2	20	30.6	28.9	14	23.7	241	337
Côte St. Luc, c.....	307	273	78	167	15.6	2	7.2	17.1	1	3.7	122	61
Dorval, c.....	375	113	53	83	24.5	6	22.2	17.6	1	11.1	96	102
Drummondville, c.....	709	598	228	275	64.9	14	39.5	33.0	9	17.0	206	359
Gravel, c.....	879	556	214	222	28.7	11	25.2	27.6	10	18.0	273	357
Hull, c.....	1,640	1,270	419	414	37.6	35	27.6	27.4	29	22.8	430	505

For footnotes, see end of table, p. 246.

2.—Summary of Principal Vital Statistics for Incorporated Urban Centres of 20,000 Population or Over,<sup>1</sup>  
1969 with Average for 1961-65—continued

Province and Urban Centre	Live Births		Deaths		Infant Mortality, <sup>2</sup>				Neonatal Mortality, <sup>3</sup>				Marriages <sup>4</sup>	
	Av. 1961-65	1969	Av. 1961-65	1969	Av. 1961-65	1969		Av. 1961-65	1969		Av. 1961-65	1969		
	No.	No.	No.	No.	Rate <sup>5</sup>	No.	Rate <sup>5</sup>	Rate <sup>5</sup>	No.	Rate <sup>5</sup>	No.	No.		
<b>Quebec—concluded</b>														
Jonquière, c.....	804	433	141	164	25.4	5	11.5	16.7	4	9.2	218	327		
Lachine, c.....	846	727	272	321	23.6	14	19.3	18.9	11	15.1	278	336		
LaSalle, c.....	1,062	2,110	210	307	23.9	30	20.6	17.1	22	15.1	128	231		
Laval, c.....	3,939	3,292	669	953	22.6	49	14.9	16.0	35	10.6	599	1,031		
Longueuil, c.....	6,339	4,733	225	473	19.1	33	18.7	13.5	21	11.9	185	543		
*Montreal, c.....	28,576	19,183	10,309	10,514	23.5	357	18.6	17.3	264	13.8	10,548	11,902		
Montreal North, c.....	1,453	1,562	343	423	29.2	36	23.0	18.3	25	16.0	215	443		
Mount Royal, t.....	243	175	120	146	14.0	3	17.1	8.2	3	17.1	161	229		
Outremont, c.....	321	245	272	257	16.2	7	28.6	13.1	5	20.4	204	143		
*Pierrefonds, c.....	593	502	51	77	12.7	11	21.9	7.6	8	15.9	22	74		
Pointe aux Trembles, c.....	581	530	204	198	25.1	14	26.4	18.9	10	18.9	111	180		
Pointe Claire, c.....	403	321	143	135	13.9	2	6.2	7.9	2	6.2	107	228		
Quebec, c.....	3,601	2,543	1,612	1,577	31.5	65	25.6	23.0	44	17.3	1,536	1,691		
*Rimouski, c.....	458	423	99	147	24.0	3	11.8	16.2	3	7.1	129	192		
Ste. Foy, c.....	1,038	1,115	158	193	16.6	16	14.3	12.1	12	10.8	130	442		
St. Hyacinthe, c.....	481	354	284	290	31.2	17	33.1	17.1	5	16.9	222	249		
St. Jean, c.....	629	502	176	200	21.0	7	13.9	23.9	6	12.8	252	321		
St. Jérôme, c.....	669	469	169	189	31.1	7	14.9	23.9	9	9.9	287	394		
St. Laurent, c.....	906	906	272	361	18.9	13	14.3	18.2	14	14.8	22	214		
*St. Léonard, t.....	316	948	45	148	23.0	19	20.0	16.5	4	11.6	241	302		
Shawinigan, c.....	647	344	191	217	32.7	6	17.4	22.9	30	20.4	572	725		
Sherbrooke, c.....	1,812	1,469	590	599	29.0	32	21.8	22.2	3	9.6	158	217		
Thetford Mines, c.....	513	313	135	132	30.0	5	16.0	16.8	3	9.6	147	474		
Trois-Rivières, c.....	1,384	877	438	457	31.7	16	18.2	23.4	15	17.1	232	289		
Valleyfield, c.....	673	533	199	229	33.9	6	11.3	22.9	4	7.5	232	289		
Venduri, c.....	1,547	1,047	606	701	23.8	22	10.2	16.5	12	11.5	528	661		
Victoriaville, t.....	514	370	170	162	37.3	7	18.9	27.6	6	16.2	178	196		
Westmount, c.....	224	200	245	253	40.1	5	25.0	19.6	2	10.0	307	334		
<b>Ontario—</b>														
Barrie, c.....	552	421	194	205	23.2	8	19.0	18.5	8	19.0	208	370		
Belleville, c.....	744	506	269	267	19.9	18	35.6	15.6	15	29.6	272	394		
Brampton, t.....	1,101	799	136	169	21.2	14	17.5	16.2	11	13.8	174	357		
Brantford, c.....	1,024	1,024	550	610	20.1	18	17.6	15.8	14	13.7	489	705		
Burlington, t.....	1,203	1,393	274	344	18.3	11	7.9	13.1	10	7.2	246	460		
Chatham, c.....	1,703	726	285	283	23.4	15	20.7	16.6	8	11.0	293	391		
Cornwall, c.....	1,103	664	343	380	28.1	17	25.6	20.5	13	19.6	356	471		
*Ettobeeke, b.....	5,117	4,118	1,311	1,579	17.4	53	12.9	13.6	42	10.2	881	1,499		

Fort William, c. (now part of Thunder Bay).....	1,018	905	400	445	21.4	17.7	17.1	15	16.6	491
Galt, c.....	637	403	275	308	29.8	12.2	22.0	5	10.1	325
Guelph, c.....	1,010	707	250	117	15.3	10.7	13.9	1	2.7	167
Hamilton, c.....	6,467	5,291	3,641	181	16.3	7.7	18.1	6	8.7	249
Kitchener, c.....	2,081	1,482	1,039	156	11.3	15.3	12.3	4	12.8	91
London, c.....	2,335	1,699	1,039	156	11.3	15.3	12.3	4	12.8	91
*Mississauga, t.....	1,429	3,813	2,447	699	22.0	20.2	16.6	8	9.6	312
*Niagara Falls, c.....	1,697	2,730	1,697	699	22.0	20.2	16.6	8	9.6	312
*North Bay, c.....	1,151	839	441	435	22.2	13.2	18.2	10	10.1	416
*Oshawa, c.....	1,059	825	441	435	22.2	13.2	18.2	10	10.1	416
Ottawa, c.....	337	317	174	233	26.1	25.5	16.4	11	13.3	498
Peterborough, c.....	1,769	2,459	1,769	233	26.1	25.5	16.4	11	13.3	498
Port Arthur, c. (now part of Thunder Bay).....	1,035	866	442	2,483	19.3	15.0	15.8	11	12.7	384
St. Catharines, c.....	1,815	760	435	468	22.9	10.5	18.2	7	9.2	508
St. Thomas, c.....	1,412	1,910	1,815	762	19.1	13.2	14.9	8	9.9	666
*Sault Ste. Marie, c.....	1,220	1,070	282	268	20.6	17.8	16.7	7	15.6	317
Scarborough, b.....	6,419	5,087	1,479	455	20.0	21.5	15.9	17	15.9	373
Sturford, c.....	2,353	1,821	525	542	22.4	18.1	17.3	28	15.4	706
Sudbury, c.....	2,353	1,821	525	542	22.4	18.1	17.3	28	15.4	706
*Toronto, c.....	15,362	13,504	7,354	6,667	31.7	30.7	23.9	166	23.5	240
Vanier, c.....	1,377	1,327	1,377	1,327	16.4	16.4	17.2	10	263	299
Waterloo, c.....	699	142	137	137	22.1	22.1	18.3	9	15.3	176
Welland, c.....	837	718	297	315	24.1	27.2	13.2	12	17.2	164
*Whitby, t.....	360	379	139	160	16.6	18.1	11.1	11	15.3	317
Woodstock, c.....	2,498	3,631	1,274	1,751	24.7	10.6	19.1	73	7.9	118
*York, b.....	3,097	1,022	17.1	1,022	23.5	7.3	17.5	1	20.1	2,085
*York, E. b.....	1,852	1,787	853	1,852	19.9	12.9	12.4	30	2.4	185
York, N., b.....	1,967	8,684	1,551	2,108	16.0	13.4	15.8	19	10.6	488
						12.6	12.2	80	9.2	913
<b>Manitoba—</b>										
Brandon, c.....	637	403	275	308	29.8	12.2	22.0	5	10.1	325
Fort Garry, s.m.....	430	374	88	117	15.3	10.7	13.9	1	2.7	167
Kildonan East, c.....	578	436	154	181	16.3	7.7	18.1	6	8.7	249
Kildonan West, c.....	372	336	136	156	11.3	15.3	12.3	4	12.8	91
*St. Boniface, c.....	1,026	836	360	270	16.6	13.2	12.5	8	9.6	312
*St. James, c.....	1,076	860	360	358	18.5	6.5	16.0	7	6.5	403
St. Vital, c.....	659	536	177	198	17.6	14.9	12.4	8	14.9	260
Winnipeg, c.....	5,788	4,517	2,672	2,806	21.7	21.3	16.0	72	15.9	3,484
<b>Saskatchewan—</b>										
Moose Jaw, c.....	782	473	333	360	22.5	14.8	18.2	5	10.6	360
Prince Albert, c.....	708	573	186	212	21.2	10.5	16.9	4	7.0	266
Regina, c.....	2,713	820	932	932	23.0	21.0	17.6	50	18.4	1,004
Saskatoon, c.....	2,770	2,706	769	922	20.4	16.5	15.5	38	13.6	1,389

For footnotes, see end of table, p. 246.



### 2.—Summary of Principal Vital Statistics for Incorporated Urban Centres of 20,000 Population or Over,<sup>1</sup> 1969 with Average for 1961-65—concluded

Province and Urban Centre	Live Births		Deaths		Infant Mortality <sup>2</sup>		Neonatal Mortality <sup>3</sup>		Marriages <sup>4</sup>	
	Av. 1961-65	1969	Av. 1961-65	1969	Av. 1961-65	1969	Av. 1961-65	1969	Av. 1961-65	1969
	No.	No.	No.	No.	Rate <sup>5</sup>	No.	Rate <sup>5</sup>	No.	No.	No.
<b>Alberta—</b>										
*Calgary, c.....	8,983	7,617	2,002	2,195	22.0	131	17.2	106	13.9	3,963
Edmonton, c.....	9,704	8,810	2,014	2,267	21.2	139	15.8	105	11.9	3,209
Lethbridge, c.....	541	652	282	333	21.6	10	13.3	8	12.3	4,797
Medicine Hat, c.....	569	410	242	266	22.1	14	33.4	10	23.9	352
Red Deer, c.....	876	495	138	153	23.7	6	12.1	3	6.1	385
<b>British Columbia—</b>										
Burnaby, d.m.....	2,057	2,001	769	907	19.6	33	16.5	24	12.0	837
Chilliwack, d.m.....	741	855	129	180	24.0	4	11.3	4	11.3	161
Coquitlam, d.m.....	745	788	147	178	17.4	14	16.3	12	14.0	194
Delta, d.m.....	332	765	100	175	8.4	12	15.7	5	10.5	138
*Kamloops, c.....	522	572	172	182	26.8	17	12.9	19.5	9.2	410
New Westminster, c.....	596	712	365	454	18.1	15	21.1	13	18.3	1,008
North Vancouver, c.....	550	566	219	250	14.9	9	15.9	8	9.6	364
North Vancouver, d.m.....	864	837	228	246	14.8	13	15.5	8	9.6	264
Prince George, c.....	1,093	860	99	120	23.4	8	9.3	6	7.0	455
Richmond, d.m.....	1,042	802	231	270	17.6	22	24.5	15	16.7	336
Saanich, d.m.....	1,761	1,698	416	534	16.9	11	13.7	6	7.5	375
Surrey, d.m.....	1,761	1,698	550	734	19.5	31	18.3	23	13.5	447
Vancouver, c.....	6,743	6,357	4,758	5,047	18.2	91	14.3	66	10.4	5,207
Victoria, c.....	972	769	898	1,025	21.4	20	26.0	13	16.9	1,022
West Vancouver, d.m.....	373	369	208	312	13.9	4	10.8	4	10.8	175

<sup>1</sup> As at the date of the 1966 Census; residents only.<sup>2</sup> Deaths under one year of age.<sup>3</sup> Deaths under 28 days.<sup>4</sup> By place of occurrence.<sup>5</sup> Per 1,000 live births.<sup>6</sup> Population fewer than 20,000 at date of 1966 Census but included as the largest urban centre in Prince Edward Island.

## 3.—Estimated Population classified by Age Group, Sex and Province, as at June 1, 1969

Province or Territory	Under 1 Year		1-4 Years		5-14 Years		15-24 Years		25-34 Years	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000
Nfld.	6.7	6.3	26.1	25.4	67.7	64.7	53.4	52.8	28.2	27.4
P.E.I.	1.0	1.0	4.4	4.3	13.0	12.5	10.6	10.4	5.7	5.5
N.S.	7.0	6.6	30.2	28.8	87.0	82.9	72.6	70.3	42.8	42.3
N.B.	6.1	5.6	25.5	24.6	75.8	72.2	63.5	61.8	33.0	32.9
Que.	49.3	46.3	224.5	212.6	680.4	651.3	575.2	568.2	404.2	408.3
Ont.	66.9	63.5	280.2	265.7	796.1	761.1	641.4	625.4	490.7	487.3
Man.	9.0	8.8	36.7	34.6	105.1	100.4	88.1	86.0	57.2	55.7
Sask.	9.0	8.6	37.8	35.8	108.6	104.1	87.3	84.0	51.6	50.1
Alta.	15.7	15.2	64.0	60.0	185.0	176.5	136.0	134.3	99.6	99.7
B.C.	18.1	17.3	72.6	68.9	216.8	207.1	177.7	170.0	140.0	131.4
Y.T.	0.2	0.2	0.8	0.7	1.9	1.8	1.1	1.1	1.3	1.0
N.W.T.	0.6	0.6	2.3	2.2	4.2	4.1	2.8	2.4	2.7	2.1
<b>Canada</b>	<b>189.6</b>	<b>180.0</b>	<b>805.1</b>	<b>763.6</b>	<b>2,341.6</b>	<b>2,238.7</b>	<b>1,910.3</b>	<b>1,866.7</b>	<b>1,357.0</b>	<b>1,343.7</b>
	35-44 Years		45-64 Years		65-74 Years		75 + Years		All Ages	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000
Nfld.	25.0	23.0	40.4	36.3	9.3	9.7	5.4	6.2	262.2	251.8
P.E.I.	5.4	5.1	9.9	9.5	3.3	3.2	2.2	3.0	55.5	54.5
N.S.	39.7	40.5	72.3	71.7	18.9	21.2	12.3	15.9	382.8	380.2
N.B.	31.0	32.1	54.7	54.6	14.5	16.4	9.2	11.5	313.3	311.7
Que.	368.2	373.4	509.4	530.2	115.6	137.2	55.6	74.1	2,982.4	3,001.6
Ont.	487.9	475.3	695.3	707.7	172.1	206.7	91.2	137.5	3,721.8	3,730.2
Man.	54.8	55.5	96.1	98.3	26.3	28.4	17.4	20.6	490.7	478.3
Sask.	52.6	50.8	94.6	91.8	26.8	25.6	20.4	19.5	488.7	480.3
Alta.	99.2	93.2	136.7	132.7	35.3	33.4	22.0	21.9	794.1	766.9
B.C.	134.2	124.1	198.9	201.9	51.6	55.6	36.9	43.9	1,046.8	1,020.2
Y.T.	1.2	0.9	1.3	1.0	0.2	0.2	0.1	--	8.1	6.9
N.W.T.	2.1	1.4	2.1	1.6	0.3	0.3	0.1	0.1	17.2	14.8
<b>Canada</b>	<b>1,301.3</b>	<b>1,275.3</b>	<b>1,911.7</b>	<b>1,937.3</b>	<b>474.2</b>	<b>537.9</b>	<b>272.8</b>	<b>354.2</b>	<b>10,563.6</b>	<b>10,497.4</b>

## 4.—Percentage Distribution of Population by Age Group, Sex and Province, as at June 1, 1969

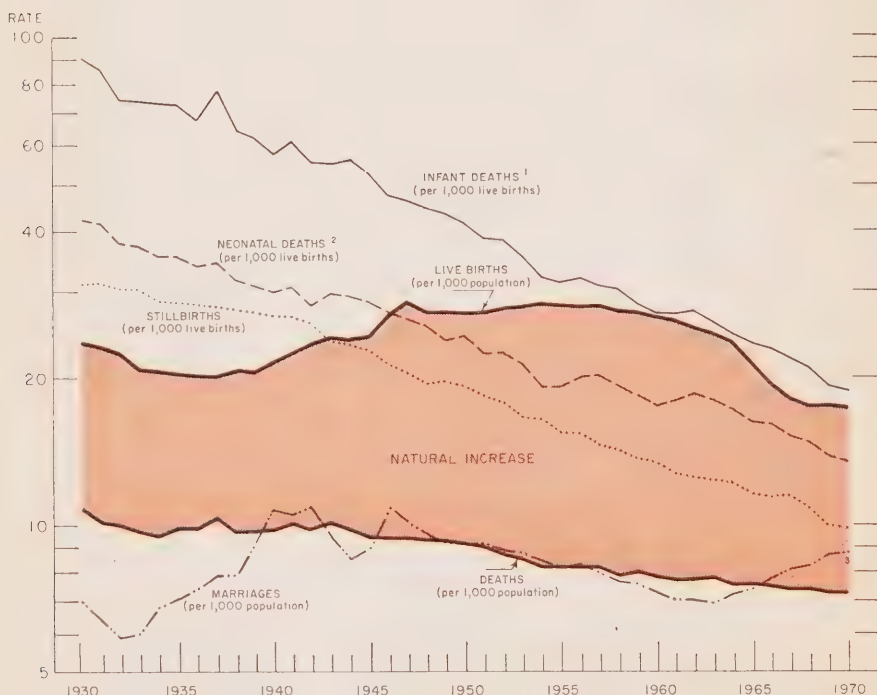
Province or Territory	Under 1 Year		1-4 Years		5-14 Years		15-24 Years		25-34 Years	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
Nfld.	2.6	2.5	10.0	10.1	25.8	25.7	20.4	21.0	10.7	10.8
P.E.I.	1.8	1.8	7.9	7.9	23.4	22.9	19.1	19.1	10.3	10.1
N.S.	1.8	1.7	7.9	7.6	22.7	21.8	19.0	18.5	11.2	11.1
N.B.	2.0	1.8	8.1	7.9	24.2	23.2	20.3	19.8	10.5	10.5
Que.	1.6	1.5	7.5	7.1	22.8	21.7	19.3	18.9	13.6	13.6
Ont.	1.8	1.7	7.5	7.1	21.4	20.4	17.2	16.8	13.2	13.1
Man.	1.8	1.8	7.5	7.1	21.4	20.6	18.0	17.6	11.6	11.4
Sask.	1.8	1.8	7.7	7.6	22.2	22.1	17.9	17.9	10.5	10.7
Alta.	2.0	2.0	8.1	7.8	23.3	23.0	17.2	17.5	12.5	13.0
B.C.	1.7	1.7	6.9	6.8	20.7	20.3	17.0	16.7	13.4	12.9
Y.T.	2.5	3.1	9.9	10.1	23.5	26.1	13.6	15.9	16.0	14.4
N.W.T.	3.7	3.9	13.4	14.9	24.4	27.7	16.3	16.2	15.7	14.2
<b>Canada</b>	<b>1.8</b>	<b>1.7</b>	<b>7.6</b>	<b>7.3</b>	<b>22.2</b>	<b>21.3</b>	<b>18.1</b>	<b>17.8</b>	<b>12.8</b>	<b>12.8</b>
	35-44 Years		45-64 Years		65-74 Years		75 + Years		All Ages	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
Nfld.	9.5	9.1	15.4	14.4	3.5	3.9	2.1	2.5	100.0	100.0
P.E.I.	9.7	9.4	17.8	17.4	5.9	5.9	4.0	5.5	100.0	100.0
N.S.	10.4	10.6	18.9	18.9	4.9	5.6	3.2	4.2	100.0	100.0
N.B.	9.9	10.3	17.5	17.5	4.6	5.3	2.9	3.7	100.0	100.0
Que.	12.3	12.4	17.1	17.7	3.9	4.6	1.9	2.5	100.0	100.0
Ont.	13.1	12.7	18.7	19.0	4.6	5.5	2.5	3.7	100.0	100.0
Man.	11.2	11.4	19.6	20.1	5.4	5.8	3.5	4.2	100.0	100.0
Sask.	10.8	10.8	19.4	19.5	5.5	5.4	4.2	4.1	100.0	100.0
Alta.	12.5	12.1	17.2	17.3	4.4	4.4	2.8	2.9	100.0	100.0
B.C.	12.8	12.1	19.0	19.8	4.9	5.4	3.5	4.3	100.0	100.0
Y.T.	14.8	13.0	16.0	14.5	2.5	2.9	1.2	--	100.0	100.0
N.W.T.	12.2	9.5	12.2	10.8	1.7	2.0	0.6	0.7	100.0	100.0
<b>Canada</b>	<b>12.3</b>	<b>12.1</b>	<b>18.1</b>	<b>18.5</b>	<b>4.5</b>	<b>5.1</b>	<b>2.6</b>	<b>3.4</b>	<b>100.0</b>	<b>100.0</b>

## 5.—Sex Ratio of the Population, as at June 1, 1969

(Males per 100 females)

Province or Territory	Under 1 Year	1-4 Years	5-14 Years	15-24 Years	25-44 Years	45-64 Years	65-74 Years	75 + Years	All Ages
Newfoundland.....	106.7	102.8	104.6	101.1	105.6	111.3	95.9	87.1	104.1
Prince Edward Island....	100.1	102.3	104.0	101.9	104.7	104.2	103.1	73.3	101.8
Nova Scotia.....	105.4	104.9	104.9	103.3	99.6	100.8	89.2	77.4	100.7
New Brunswick.....	109.5	103.7	105.0	102.8	98.5	100.2	88.4	80.0	100.5
Quebec.....	106.5	105.6	104.5	101.3	98.8	96.1	84.3	75.0	99.4
Ontario.....	105.4	105.5	104.6	102.6	101.7	98.2	83.3	66.3	99.8
Manitoba.....	103.3	106.1	104.7	102.4	100.7	97.8	92.6	84.5	100.5
Saskatchewan.....	104.9	105.6	104.3	103.9	103.3	103.1	104.7	104.6	103.9
Alberta.....	103.6	106.7	104.8	101.7	103.1	103.0	105.7	100.5	103.5
British Columbia.....	105.0	105.4	104.7	104.5	107.3	98.5	92.8	84.1	102.6
Yukon Territory.....	114.9	114.3	105.6	100.0	131.6	130.0	100.0	—	117.4
Northwest Territories....	108.9	104.5	102.4	116.7	137.1	131.3	100.0	100.0	116.2
<b>Canada .....</b>	<b>105.5</b>	<b>105.4</b>	<b>104.6</b>	<b>102.3</b>	<b>101.5</b>	<b>98.7</b>	<b>88.2</b>	<b>77.0</b>	<b>100.6</b>

## VITAL STATISTICS RATES, 1930-70

<sup>1</sup> DEATHS UNDER ONE YEAR OF AGE.<sup>2</sup> DEATHS WITHIN THE FIRST FOUR WEEKS OF BIRTH.<sup>3</sup> PROVISIONAL.



## Section 2.—Births\*

No accurate figures on Canadian crude† birth rates are available prior to 1921, when the annual collection of official national figures was initiated. However, the following rough estimates of the average annual crude rates for each ten-year intercensal period between 1851 and 1921 may be inferred from studies of early Canadian census data:—

<i>Intercensal Period</i>	<i>Estimated Average Annual Crude Birth Rate (per 1,000 Population)</i>	<i>Intercensal Period</i>	<i>Estimated Average Annual Crude Birth Rate (per 1,000 Population)</i>
1851-61.....	45	1891-1901.....	30
1861-71.....	40	1901-11.....	31
1871-81.....	37	1911-21.....	29
1881-91.....	34		

The general trend in the national crude birth rate (i.e., per 1,000 total population) since 1930 is shown in the facing chart and since 1951 in Table 1. The annual rates declined gradually but steadily from 29.3 in 1921 to a record low of 20.1 in 1937, recovered sharply in the late 1930s and during World War II to 24.3 in 1945, and following the War rose to a postwar high of 28.9 in 1947. Between 1948 and 1959 the rate remained remarkably stable at between 27.1 and 28.5 but has since been declining and in both 1968 and 1969 reached 17.6, the lowest on record. Part of this decline is attributable to the fact that the crude birth rate is based on *total* population, which now includes larger proportions of 'non-reproductive' population. Even if the annual number of births were to remain stable, the net effect of an increase in population would be a declining crude birth rate.

The rates in most provinces followed trends very similar to the national trend but showed some regional differences in recent years. Although all provinces had record high rates immediately following World War II, average birth rates in Ontario and the western provinces were higher during the 1951-55 period than during 1946-50 and those for Quebec and the Maritimes were lower than during 1946-50. In fact, Ontario, Alberta and British Columbia had record *high* crude birth rates during the 1956-60 period. In 1969, Prince Edward Island, Nova Scotia, Quebec and Saskatchewan had record *low* rates.

It is often erroneously assumed that the Province of Quebec has not only the largest number of births annually but the highest rate in Canada. Since the late 1930s or early 1940s Newfoundland, in some years New Brunswick and, since 1953, Alberta have had higher birth rates than Quebec. Table 1, pp. 241-242, shows that six provinces—Newfoundland, Alberta, New Brunswick, Prince Edward Island, Nova Scotia and Saskatchewan, in that order—had higher crude rates than Quebec or Ontario in 1966, followed by Manitoba and British Columbia, and that, in 1969, as in the previous year, Quebec had the lowest crude birth rate in the country. However, since these crude rates are based on the *total* population they do not reflect the true fertility of the women of reproductive ages in the different provinces or the number married within these reproductive ages. A more accurate measure of the true birth rate is one based on the number of married women between the ages of 15 and 45 (see pp. 252-254).

Also contrary to popular impression, since 1953 more babies were born each year in Ontario than in the Province of Quebec; in 1969, 130,398 babies were born to Ontario mothers as compared with 95,610 to Quebec mothers. Altogether, 369,647 children were born alive in Canada in 1969, 109,628 fewer than the record 479,275 born in 1959 but 5,337 more than the number born during 1968.

\* Unless otherwise indicated, "births" in this Section refers to infants born alive; stillbirths are dealt with under a separate heading on pp. 256-258 and under multiple births on p. 251. For international comparisons, see Section 7, pp. 284-285.

† A crude rate is one based on the *total* population.

**Sex of Live Births.**—With rare exceptions, wherever birth statistics have been collected they have shown an excess of male over female births. No conclusive explanation of this excess has yet been given. Nevertheless, it is so much an accepted statistical fact that a proper ratio of male to female births has become one of the criteria of complete registration. The number of males to every 1,000 females born in Canada has averaged around 1,057 since the middle 1930s. Provincial sex ratios vary much more widely because of the relatively small number of births involved—the smaller the total number of births, the greater the chance of wide sex-ratio variations from year to year. In 1969, 1,055 male infants were born for every 1,000 females.

#### 6.—Sex Ratios of Live Births, 1951-69

Year	Males	Females	Males to 1,000 Females	Year	Males	Females	Males to 1,000 Females
	No.	No.	No.		No.	No.	No.
1951.....	195,918	185,174	1,058	1964.....	232,657	220,258	1,056
1956.....	231,697	219,042	1,058	1965.....	215,112	203,483	1,057
				1966.....	198,928	188,782	1,054
1961.....	244,403	231,297	1,057	1967.....	189,847	181,047	1,049
1962.....	240,870	228,823	1,053	1968.....	187,489	176,821	1,060
1963.....	238,865	226,902	1,053	1969.....	189,798	179,849	1,055

**Hospitalized Births.**—In 1969, 99.5 p.c. of all Canadian births occurred in hospital as compared with 91.7 p.c. ten years previously. Before the initiation in 1958 of the federal-provincial hospital insurance programs—in which all provinces were participating by 1961—there were rather wide variations among the provinces in percentages of hospitalized births. Such variations were caused by the existence of prepaid or provincially sponsored hospital, maternity or medical care plans in some provinces, the unavailability of hospital facilities in others—particularly in remote rural areas—and preference for home delivery in some local areas. Little variation now exists and only in the Yukon and Northwest Territories do the percentages fall below 99.3 p.c.; in the Yukon Territory it was 96.8 p.c. in 1969 and in the Northwest Territories 86.2 p.c.

**Births in Urban Centres.**—Table 2, pp. 243-246, shows the number of births in 1969, as compared with the average for 1961-65, to mothers residing in each urban centre of 20,000 population or over in 1969. Because the populations of urban centres are not known for intercensal years, birth rates cannot be computed for those years.

**Illegitimacy.\***—In 1969, 9.2 p.c. of the live births in Canada were illegitimate. This percentage is low compared with that of many countries of the world but has been rising recently, as shown in Table 7. In some provinces the percentages of illegitimate births have more than doubled during the past 20 years. It should be noted that the increase in the proportion of the illegitimate births is attributable to two factors: first, the relative increase in the proportion of women aged 15-24 (in the female population of child-bearing age) where the probability of having an illegitimate birth is the highest; and second, since legitimate fertility has declined sharply in recent years, the relative weight of the illegitimate fertility has increased.

\* The term "illegitimacy", as used here, does not refer to all births conceived out of wedlock but is necessarily restricted to those in which parents reported themselves as not having been married to each other at the time of birth or registration and, in Ontario, to those in which the marital status of the mother was reported as "single" at the time of birth or registration.

## 7.—Illegitimate Live Births and Percentages of Total Live Births, by Province, 1951-69

Year	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Canada
NUMBERS													
Av. 1951-55	426	139	1,082	659	4,086	4,065	969	1,044	1,481	1,898	53	50	15,951
" 1956-60	587	139	1,201	687	4,675	4,891	1,166	1,194	1,941	2,505	72	102	19,160
" 1961-65	716	132	1,437	803	5,595	6,519	1,672	1,565	2,786	3,137	91	152	24,605
1966.....	832	145	1,551	882	6,366	8,476	1,844	1,923	3,198	3,926	72	176	29,391
1967.....	858	138	1,544	861	6,727	9,935	1,915	1,916	3,518	4,194	86	223	30,915
1968.....	948	156	1,453	889	7,018	9,463	2,102	2,148	3,614	4,502	79	257	32,629
1969.....	1,033	135	1,593	974	7,251	9,802	2,160	2,068	3,809	4,877	114	225	34,041
PERCENTAGES OF TOTAL LIVE BIRTHS													
Av. 1951-55	3.2	5.1	5.9	4.0	3.2	3.2	4.5	4.4	4.8	6.1	12.9	7.5	3.8
" 1956-60	3.9	5.2	6.3	4.1	3.3	3.2	5.2	5.0	5.3	6.4	14.2	10.8	4.1
" 1961-65	4.7	4.8	7.8	5.1	4.3	4.3	7.6	6.9	7.5	8.5	17.8	13.0	5.4
1966.....	5.9	6.6	10.2	6.9	5.8	6.4	10.2	10.1	10.5	12.1	19.5	15.2	7.6
1967.....	6.7	6.7	10.8	7.0	6.6	7.0	11.1	10.6	11.5	12.7	22.3	18.4	8.3
1968.....	7.4	7.4	10.5	7.7	7.3	7.5	12.1	11.8	12.0	13.4	21.4	19.8	9.0
1969.....	7.9	6.7	11.7	8.3	7.6	7.5	12.1	11.8	12.3	13.8	24.7	18.5	9.2

**Multiple Births.**—Approximately 1 p.c. of the confinements result in multiple births, and 99 p.c. of the multiple births are twins. One out of about 10,000 confinements results in triplets. Two sets of quadruplets were born in 1960 and one set in each of 1962, 1963, 1964 and 1968 and two sets in 1969. In 1969 a total of 369,648 mothers bore a total of 373,365 infants, of which 369,647, or 99 out of every 100, were born alive.

8.—Single and Multiple Births, Live and Stillborn,<sup>1</sup> 1966-69

Confinements and Births	Numbers				Percentages			
	1966 <sup>2</sup>	1967 <sup>3</sup>	1968 <sup>4</sup>	1969 <sup>5</sup>	1966	1967	1968	1969
<b>Confinements</b> .....	<b>388,162</b>	<b>371,378</b>	<b>364,593</b>	<b>369,648</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Single.....	384,183	367,629	360,965	365,969	99.0	99.0	99.0	99.0
Twin.....	3,948	3,712	3,597	3,643	1.0	1.0	1.0	1.0
Triplet.....	31	37	30	34	—	—	—	—
Quadruplet.....	—	—	1	2	—	—	—	—
<b>Births</b> .....	<b>392,172</b>	<b>375,164</b>	<b>368,253</b>	<b>373,365</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Single—								
Live.....	379,970	363,601	357,221	362,480	98.9	98.9	99.0	99.0
Stillborn.....	4,213	4,028	3,744	3,489	1.1	1.1	1.0	1.0
Twin—								
Live.....	7,653	7,187	7,000	7,068	96.9	96.8	97.3	97.0
Stillborn.....	243	237	194	218	3.1	3.2	2.7	3.0
Triplet—								
Live.....	87	106	85	91	93.5	95.5	94.4	89.2
Stillborn.....	6	5	5	11	6.5	4.5	5.6	10.8
Quadruplet—								
Live.....	—	—	4	8	—	—	100.0	100.0
Stillborn.....	—	—	—	—	—	—	—	—
<b>Totals, Live Births.</b>	<b>387,710</b>	<b>370,894</b>	<b>364,310</b>	<b>369,647</b>	<b>98.9</b>	<b>98.9</b>	<b>98.9</b>	<b>99.0</b>
<b>Totals, Stillborn....</b>	<b>4,462</b>	<b>4,270</b>	<b>3,943</b>	<b>3,718</b>	<b>1.1</b>	<b>1.1</b>	<b>1.1</b>	<b>1.0</b>

<sup>1</sup> Unless otherwise indicated, includes only foetuses of 28 or more full weeks gestation, stillbirths of 20-27 weeks gestation.

<sup>3</sup> Includes 22 stillbirths of 20-27 weeks gestation.

<sup>5</sup> Includes 24 stillbirths of 20-27 weeks gestation.

<sup>2</sup> Includes 33

<sup>4</sup> Includes 17



**Fertility Rates.**—The sex and age composition of a population is obviously an important factor in determining crude birth, marriage and death rates. Since almost all children born each year are to women between the ages of 15 and 45, variations in the proportion of women of these ages to the total population will cause variations in the crude birth rate of different countries—or of different regions within a country—even though the actual rates of reproduction or *fertility* of the women in these age groups in each country or region are identical.

A more accurate measure of the fertility of a population would be one based on the number of women of reproductive age, that is those 'able' to bear children, and a still more accurate measure would be one based on the number within this group that are married, that is those 'eligible', as it were, to bear children. Each type of rate has its uses, depending on the comparisons required. The two types are compared in Table 9, and indicate the variations in each type as between provinces and the provincial trends over the years 1966-69.

The number of infants born in relation to every 1,000 women in the population between the ages of 15 and 45 has been declining for the past few years, dropping from 93.4 in 1966 to 82.4 in 1969. However, the rates varied among the provinces from a high of 149.0 to a low of 70.8 during the past four years; in 1969, Newfoundland, Prince Edward Island, Saskatchewan, Alberta, New Brunswick and Manitoba had the highest rates and Quebec, Ontario, British Columbia and Nova Scotia the lowest, in order of mention. On the other hand, the average annual number of infants born to every 1,000 *married* women in the country as a whole dropped from 133.9 to 117.6 during the same period. According to this measure, the four eastern provinces and Saskatchewan had, on the whole, the highest rates.

**9.—Crude Fertility Rates, by Province, 1966-69**

Province or Territory	Rates per 1,000 <i>Total</i> Women 15-44 Years of Age <sup>1</sup>				Rates per 1,000 <i>Married</i> Women 15-44 Years of Age <sup>1</sup>			
	1966	1967	1968	1969	1966	1967	1968	1969
Newfoundland.....	149.0	132.5	128.3	126.0	231.3	207.0	200.2	196.8
Prince Edward Island.....	112.1	102.4	102.7	95.7	174.9	161.8	163.8	154.9
Nova Scotia.....	103.7	96.4	91.5	88.9	148.4	138.9	133.3	128.2
New Brunswick.....	106.3	101.4	93.3	92.2	163.1	157.0	144.1	141.6
Quebec.....	86.6	78.1	72.9	70.8	139.2	124.6	115.8	112.2
Ontario.....	91.2	85.0	81.7	82.1	124.7	116.5	112.0	112.8
Manitoba.....	94.7	90.0	89.9	90.3	131.6	125.4	124.8	125.5
Saskatchewan.....	105.8	99.0	99.1	95.1	144.3	136.2	135.9	131.8
Alberta.....	102.4	100.2	95.2	94.3	134.3	131.5	125.2	124.1
British Columbia.....	87.5	84.0	82.4	83.2	113.0	108.8	106.9	107.8
Yukon Territory.....	125.4	128.3	123.3	154.0	144.5	..	..	..
Northwest Territories.....	210.2	224.1	220.0	206.1	269.3	..	..	..
<b>Canada<sup>2</sup>.....</b>	<b>93.4</b>	<b>86.7</b>	<b>83.0</b>	<b>82.4</b>	<b>133.9</b>	<b>124.4</b>	<b>118.8</b>	<b>117.6</b>

<sup>1</sup> Since the number of births to women over age 44 is quite small, rates are here restricted to women under 45.

<sup>2</sup> Excludes the Yukon and Northwest Territories.

The rates shown in Table 9 are *crude* in the sense that they do not take into account differences in fertility in the component age periods within the female reproductive life span, nor the proportions of married women in each age period. It is therefore conventional practice to calculate what are termed *age-specific fertility rates*, i.e., the number of infants born annually to every 1,000 women in *each* of the reproductive age periods, again either for all women or for those who are married. Table 10 provides these two sets of rates for 1951, 1956 and 1961-69.

Table 10 indicates that, in 1969, considering all women, whether married or not, women in their 20s were the most reproductive, as might be expected; on the average, for every 1,000 women between the ages of 20 and 25, 146 infants were born during that year or, expressed another way, about one woman out of seven in that age group gave birth to a live-born infant. For the first time in recent years, women in the age group 25-29 had a slightly higher rate (149) than those in their early 20s. However, among married women, teen-age mothers have consistently had the highest fertility, with one out of three bearing a child in 1969, while more than one out of every four married women in their early 20s had a child, as compared with one out of every six in their late 20s.

### 10.—Age-Specific Fertility Rates per 1,000 Women, by Age Group, 1951-69

(Exclusive of Newfoundland)

Year	Age Group						
	15-19	20-24	25-29	30-34	35-39	40-44	45-49
TOTAL WOMEN							
1951.....	48.1	188.7	198.8	144.5	86.5	30.9	3.1
1956.....	55.9	222.2	220.1	150.3	89.6	30.8	2.9
1961.....	58.2	233.6	219.2	144.9	81.1	28.5	2.4
1962.....	55.0	231.6	214.6	143.1	77.1	27.6	2.1
1963.....	53.1	226.0	210.6	140.3	75.8	25.9	2.1
1964.....	50.2	212.8	203.1	134.9	72.0	25.1	2.1
1965.....	49.3	188.6	181.9	119.4	65.9	22.0	2.0
1966.....	48.2	169.1	163.5	103.3	57.5	19.1	1.7
1967.....	45.2	161.1	151.4	91.4	50.6	15.9	1.5
1968.....	43.4	152.5	147.1	85.8	44.4	13.8	1.4
1969.....	42.7	146.5	148.6	84.2	42.1	12.3	1.1
MARRIED WOMEN							
1951.....	498.5	350.4	248.1	168.7	100.6	36.6	3.7
1956.....	551.5	381.7	265.5	169.8	101.0	35.6	3.4
1961.....	541.2	374.4	255.6	161.4	89.9	32.1	2.8
1962.....	526.7	368.9	249.8	158.6	85.1	31.0	2.5
1963.....	512.7	362.2	244.9	154.8	83.4	29.0	2.4
1964.....	487.2	344.4	235.2	148.2	79.0	27.9	2.4
1965.....	481.9	307.4	209.7	130.6	71.9	24.3	2.3
1966.....	465.8	280.2	187.3	112.5	62.5	21.0	2.0
1967.....	409.7	271.8	174.0	99.3	54.5	17.3	1.6
1968.....	372.8	259.2	169.9	93.0	47.4	14.9	1.5
1969.....	350.4	249.5	172.5	91.1	44.7	13.3	1.2

Another measure of fertility in a country is obtainable from what is conventionally referred to as a *gross reproduction rate*. The gross reproduction rates shown in Table 11 indicate the average number of *female* children born each year to each woman living through the child-bearing ages. In other words, the gross reproduction rate represents the average number of females that *would* be born to each woman who lived to age 50 if the fertility rate of the given year remained unchanged during the whole of her child-bearing period. A rate of 1.000 indicates that, on the basis of current fertility and without making any allowance for mortality among mothers during their child-bearing years, the present generation of child-bearing women would exactly maintain itself. Canada has always had one of the highest gross reproduction rates among the industrialized countries of the world. Even during the period of low birth rates in the 1930s the rate varied between 1.300 and 1.500 and since World War II has ranged from 1.640 to a record high of 1.915 in 1959. However, since 1959, and particularly since 1964, the national gross reproduction rate has dropped rather dramatically from 1.788 to 1.162 in 1969—only 16.2 p.c. more than the number required for the population to replace itself. Provincial and territorial rates have,

on the whole but with some exceptions, followed the same pattern as the national average. Among the provinces, Quebec, British Columbia and Ontario, in that order, had the lowest gross reproduction rates in 1969, with Quebec barely above the replacement level.

### 11.—Gross Reproduction Rates, by Province, 1951-69

Year	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Canada <sup>1</sup>
1951.....	2.020	1.781	2.147	1.834	1.560	1.584	1.756	1.825	1.557	2.480	3.150	1.701
1956.....	2.297	1.957	2.023	1.892	1.780	1.800	1.974	2.079	1.915	2.156	3.017	1.874
1961.....	2.355	2.021	2.210	1.787	1.824	1.922	2.055	2.087	1.852	2.640	3.521	1.868
1962.....	2.117	2.004	2.138	1.740	1.796	1.886	2.036	2.039	1.821	2.405	3.236	1.830
1963.....	2.332	1.951	2.042	1.695	1.759	1.863	2.073	1.966	1.742	2.384	3.210	1.788
1964.....	2.132	1.901	2.011	1.616	1.686	1.747	1.983	1.838	1.600	2.405	3.433	1.702
1965.....	2.012	1.702	1.839	1.451	1.521	1.591	1.752	1.616	1.442	2.103	3.216	1.529
1966.....	1.724	1.523	1.606	1.284	1.361	1.438	1.588	1.506	1.299	1.808	2.987	1.369
1967.....	1.576	1.414	1.532	1.154	1.247	1.355	1.478	1.456	1.223	1.792	3.168	1.261
1968.....	1.543	1.305	1.378	1.054	1.184	1.309	1.455	1.345	1.182	1.839	3.187	1.184
1969.....	1.459	1.266	1.307	1.014	1.174	1.321	1.399	1.349	1.171	2.082	2.870	1.162

<sup>1</sup>Exclusive of Newfoundland.

**Age of Parents.**—Age of parents is an important variable in any analysis of birth statistics. The distribution of legitimate and illegitimate live births in 1969 by age of the parents is given in Table 12 (in addition to those for illegitimates shown in Table 7 (p. 251).

### 12.—Live Births, by Age of Parents, 1969

(Exclusive of Newfoundland)

Age Group	Legitimate				Illegitimate	
	Fathers		Mothers		Mothers	
	No.	p.c.	No.	p.c.	No.	p.c.
Under 20 years.....	5,597	1.7	27,323	8.4	13,607	42.0
Under 15 years.....	1	--	26	--	241	0.7
15 years.....	1	--	282	0.1	838	2.6
16 ".....	23	--	1,393	0.4	1,856	5.7
17 ".....	342	0.1	4,195	1.3	3,017	9.3
18 ".....	1,437	0.4	8,330	2.6	3,778	11.6
19 ".....	3,793	1.2	13,097	4.0	3,877	12.0
20-24 ".....	70,792	21.9	113,014	34.9	12,053	37.2
25-29 ".....	108,128	33.5	100,050	30.9	3,753	11.6
30-34 ".....	70,913	22.0	50,018	15.5	1,748	5.4
35-39 ".....	40,480	12.5	25,039	7.7	951	2.9
40-44 ".....	18,279	5.7	7,513	2.3	290	0.9
45-49 ".....	6,397	2.0	603	0.2	31	0.1
50 years or over.....	2,285	0.7	5	--	—	—
<b>Totals, Stated Ages.....</b>	<b>322,871</b>	<b>100.0</b>	<b>323,565</b>	<b>100.0</b>	<b>32,433</b>	<b>100.0</b>
Ages not stated.....	768	...	74	...	575	...
<b>Totals, All Ages.....</b>	<b>323,639</b>	<b>100.0</b>	<b>323,639</b>	<b>100.0</b>	<b>33,008</b>	<b>100.0</b>
Average ages..... yrs.	30.0		27.0		22.7	
Median ages <sup>1</sup> ..... "	28.9		25.9		20.7	

<sup>1</sup> The ages above and below which half of the births occurred.

Over 8 p.c. of the legitimate children born in 1969 were born to mothers under 20 years of age; in over two fifths of the births the mother was under 25 years, and in almost three quarters, under 30 years. In over one fifth of the births the father was under 25 years of age, and in over one half of all births the father was under 30 years. On the other hand, over two fifths of the illegitimate infants were born to mothers under 20 years of age and an additional 37.2 p.c. to mothers under 25 years. The average age of all the married mothers



to whom a child was born in 1969 was 27.0 and of the fathers 30.0 years; ten years ago the average ages of the parents were 28.2 and 31.4, and thirty years ago 28.9 and 33.2, respectively.

The median age of unmarried mothers who bore a live-born child in 1969 was 20.7; that is, half of the mothers of the 33,008 'illegitimate' children delivered in 1969 were under 20.7 years of age.

It should be kept in mind that the higher proportion of births occurring at younger ages in recent years does not necessarily mean that couples are having their children at a younger age. Two things should be noted: first, the decline in fertility in recent years has been greatest among older women and, consequently, births occurring at younger ages automatically form a greater proportion of total births than formerly, as well as produce a lower average age at birth; secondly, this effect is compounded by the growing proportion of women in early child-bearing ages where fertility is higher or, more accurately, has declined less than among older women.

**Order of Birth.**—Table 13 shows the order of birth of all live-born infants in 1969 according to the age of the mother. As would be expected, 33,907, or four out of every five of the 40,930 infants born to mothers under 20 years of age, were the first live-born child, whereas almost 12 out of every 25 of the children born to mothers of 20-24 years were their second or later live-born child. In 1969, 267 infants were born to mothers who had not yet reached their 15th birthday.

### 13.—Order of Birth of Live-Born Children, by Age of Mother, 1969

(Exclusive of Newfoundland)

Order of Birth of Child	Age of Mother										Percentage of Total
	Under 15	15-19	20-24	25-29	30-34	35-39	40-44	45 or Over	Age Not Stated	All Ages	
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	
1st child.....	263	33,644	65,511	28,114	6,716	2,141	442	41	561	137,433	38.5
2nd ".....	4	6,216	41,498	34,978	11,217	3,363	701	41	28	98,046	27.5
3rd ".....	—	708	12,887	22,338	12,535	4,661	922	44	11	54,106	15.2
4th ".....	—	86	3,687	10,221	8,812	4,583	1,092	62	6	28,549	8.0
5th ".....	—	6	1,082	4,457	5,208	3,388	983	66	4	15,194	4.3
6th ".....	—	—	287	2,091	3,016	2,448	837	50	4	8,733	2.4
7th ".....	—	—	93	958	1,792	1,668	690	44	1	5,246	1.5
8th ".....	—	—	14	397	1,089	1,163	513	46	1	3,223	0.9
9th ".....	—	—	1	154	668	849	372	41	1	2,086	0.6
10th ".....	—	—	—	67	364	610	341	45	1	1,428	0.4
11th ".....	—	—	—	17	185	447	262	29	—	940	0.3
12th ".....	—	—	—	4	104	294	210	34	—	646	0.2
13th ".....	—	—	—	2	41	198	169	30	—	440	0.1
14th ".....	—	—	—	—	10	83	110	23	—	226	0.1
15th ".....	—	—	—	—	2	61	68	16	—	147	—
16th ".....	—	—	—	—	—	15	34	12	—	61	—
17th ".....	—	—	—	—	—	7	29	7	—	43	—
18th ".....	—	—	—	—	—	5	13	4	—	22	—
19th ".....	—	—	—	—	—	4	8	2	—	14	—
20th or over.....	—	—	—	—	—	—	6	1	—	7	—
Not stated.....	—	3	7	5	7	2	1	1	31	57	—
<b>Totals.....</b>	<b>267</b>	<b>40,663</b>	<b>125,067</b>	<b>103,803</b>	<b>51,766</b>	<b>25,990</b>	<b>7,803</b>	<b>639</b>	<b>649</b>	<b>356,647</b>	<b>100.0</b>

Table 14 summarizes the pattern of family formation since 1951 and shows that the percentages of first and second children have been increasing in recent years. As mentioned above for illegitimate births and average ages of parents, the decline in fertility and the recent evolution of the age structure of the female population affect the percentage distribution of births by parity. The increasing proportion of women in early child-bearing ages, where the majority of low-parity births occur, tends obviously to increase the proportion of these births. Also, as explained for illegitimate births, the decline in the number of high-parity births also contributes to the increase in the percentage of low-parity births

since the latter are taken as a percentage of *total* births. These two factors more than offset a decline in recent years in the probability of having a first or a second child as compared with the early 1960s. For example, if the 1962 fertility rates for first and second births had prevailed in 1969; there would have been an extra 55,000 births; the corresponding rates for 1957 would have yielded 86,000 additional births. Thus, the postponement of births by recently married couples is one of the main factors in the decline in the annual number of births in recent years.

#### 14.—Percentage Distribution of Legitimate Live Births, by Order of Birth, 1951-69

(Exclusive of Newfoundland)

Year	1st Child	2nd Child	3rd Child	4th and Later Children	Total
1951.....	26.7	25.8	17.6	29.9	100.0
1956.....	25.2	24.3	18.3	32.2	100.0
1961.....	24.1	23.6	18.5	33.8	100.0
1962.....	24.0	23.7	18.4	33.9	100.0
1963.....	24.3	23.6	18.5	33.6	100.0
1964.....	25.0	23.8	18.3	32.9	100.0
1965.....	27.1	24.3	17.6	31.0	100.0
1966.....	29.9	25.5	16.9	27.6	100.0
1967.....	32.6	26.5	16.3	24.6	100.0
1968.....	34.2	27.8	16.0	21.9	100.0
1969.....	35.3	28.9	16.1	19.7	100.0

**Birthweight.**—Excluding Newfoundland, information on birthweight of newborn infants has recently become available from provincial records of birth. These data, in addition to their usefulness in calculating the average weights of newborn infants, are of importance from the public health and medical points of view in throwing light on the number of immaturely developed fetuses that are delivered alive. According to criteria recommended by the World Health Organization, infants of 5½ lb. or less at birth are considered 'immature' and hence exposed to a much greater risk of dying than those over this weight. Weight of the infant at birth depends on a host of maternal factors—biological, physiological, environmental, nutritional, etc.—information on which is not available from the birth records, but some information is available on the age of the mother and duration of pregnancy before delivery.\* Analysis of this information shows that (1) there are variations in average weight according to the age of the mother, (2) women under 20 and over 35 tend to produce higher proportions of immature infants, so that the late 20s and early 30s would appear to be the ideal ages for motherhood, and (3) almost all infants of less than 28 weeks gestation are delivered 'immature' according to the definition. The average single male infant born at full term weighs about 7 lb. 7 oz. at birth and the average female about 5 oz. less.

**Stillbirths.**†—The 3,694 stillbirths of at least 28 weeks gestation that were delivered in 1969 represented a ratio of 10 for every 1,000 fetuses born alive. As is evident from Table 15, the stillbirth ratio has been decreasing steadily—except for a slight increase in 1967—and has been cut by more than half over the past quarter-century. Although the variations between provincial ratios have never been wide, ratios in some provinces have been reduced more than in others. The stillbirth ratio among unmarried mothers has been consistently higher than that among married mothers but the difference is narrowing.

\* Obtainable from the Vital Statistics Section, Statistics Canada.

† Stillbirth figures given here refer only to fetuses of 28 or more weeks gestation. Up to the end of 1963, only fetuses delivered after at least 28 weeks pregnancy which showed no sign of life were required to be registered with the provincial authorities; as of Jan. 1, 1964, all provinces (except Newfoundland) provide for the compulsory registration of all stillbirths of 20 or more weeks gestation, a 'stillbirth' being defined as "the complete expulsion or extraction from its mother, after at least 20 weeks' pregnancy, of a product of conception in which, after such expulsion or extraction, there is no breathing, beating of the heart, pulsation of the umbilical cord, or unmistakable movement of voluntary muscle". Available data for stillbirths of 20-27 weeks pregnancy are not shown here but are obtainable from the Vital Statistics Section, Statistics Canada.

## 15.—Stillbirths and Ratios per 1,000 Live Births, by Province, 1951-69

Year	Born to All Mothers													Born to Unmarried Mothers	
	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N. W. T.	Canada	No.	P.C. of Total
NUMBERS (28 WEEKS OR MORE GESTATION)															
Av. 1951-55	222	52	337	291	2,705	2,017	336	313	425	374	6	11	7,088	316	4.60
" 1956-60	274	46	304	267	2,446	1,992	301	262	368	418	5	12	6,714	291	4.51
" 1961-65	261	47	256	220	1,727	1,818	278	242	368	370	5	19	5,600	327	6.12
1966.....	188	34	212	174	1,301	1,554	193	172	280	301	2	18	4,429	345	8.13
1967.....	183	24	203	169	1,232	1,419	205	189	286	311	5	22	4,248	372	9.15
1968.....	183	35	151	146	990	1,442	210	171	254	316	7	21	3,926	395	10.55
1969.....	162	30	174	165	905	1,296	174	168	270	331	2	17	3,694	390	11.00
RATIOS														Ratio per 1,000 Illegitimate Live Births <sup>1</sup>	
Av. 1951-55	17.0	19.0	18.4	17.7	21.0	15.6	15.7	13.3	13.7	11.9	14.1	16.5	17.0	20.3	
" 1956-60	18.3	17.1	15.9	16.1	17.5	13.0	13.4	10.9	10.5	10.7	10.7	12.3	14.3	15.6	
" 1961-65	17.3	17.1	13.8	14.0	13.1	11.9	12.5	10.6	9.7	10.1	9.0	16.0	12.3	13.7	
1966.....	13.3	15.5	13.9	13.7	11.8	11.8	10.7	9.0	9.2	9.3	5.4	15.5	11.4	12.1	
1967.....	14.2	11.7	14.2	13.7	12.1	11.1	11.9	10.5	9.3	9.5	13.0	18.2	11.5	12.4	
1968.....	14.3	16.6	11.0	12.6	10.2	11.4	12.1	9.4	8.4	9.4	18.9	16.2	10.8	12.5	
1969.....	12.5	14.9	12.8	14.1	9.5	9.9	9.8	9.5	8.8	9.4	4.3	14.0	10.0	11.8	

<sup>1</sup> Exclusive of Newfoundland.

Table 16 illustrates the fact that the risk of having a stillborn child increases with the age of the mother. Although stillbirth ratios for mothers of all ages have been declining, they continue to be three to four times as high for mothers over 40 years of age as for mothers under 30. The average age of mothers who bore stillborn children in 1969 was 28.4 years; the median age was 27.3. The average age of mothers who bore legitimate live-born children was 27.0 and of those who bore illegitimate live-born offspring was 22.7 (Table 12). Causes of stillbirths in 1969 are shown in Table 17.

## 16.—Stillbirths and Ratios per 1,000 Live Births, by Age of Mother, 1969

(Exclusive of Newfoundland)

Age Group of Mother		Live Births	Stillbirths	Stillbirth Ratio per 1,000 Live Births
		No.	No.	No.
Under 20 years		40,930	370	9.0
20-24	"	125,067	984	7.9
25-29	"	103,803	900	8.7
30-34	"	51,766	565	10.9
35-39	"	25,990	440	16.9
40-44	"	7,803	224	28.7
45-49	"	634	39	61.5
50 years or over		5	—	—
Age not stated		649	10	...
Totals, All Ages		356,647	3,532	9.9
Average age of mothers		27.0	28.4	...
Median age of mothers <sup>1</sup>		25.5	27.3	...

<sup>1</sup> The age above and below which half of the stillbirths occurred,



## 17.—Stillbirths, by Cause, 1969

International "P" List No.	Cause (eighth revision)	Males	Females	Total
		No.	No.	No.
1-4	Chronic circulatory and genito-urinary disease in mother....	6	7	13
5-11	Other maternal conditions unrelated to pregnancy.....	84	74	158
12-17	Toxaemias of pregnancy.....	112	104	216
18-20	Maternal ante and intrapartum infection.....	17	21	38
21-23	Difficult labour with abnormality of bones, organs or tissues of pelvis.....	9	5	14
24-26	Difficult labour with disproportion.....	8	3	11
27-29	Difficult labour with malposition of foetus.....	44	39	83
30-32	Difficult labour with abnormality of forces of labour.....	6	9	15
33-35	Difficult labour with other and unspecified complications....	17	13	30
36-41	Other complications of pregnancy and childbirth.....	47	37	84
42-46	Conditions of placenta.....	524	449	973
47-49	Conditions of umbilical cord.....	239	222	461
50-52	Birth injury without mention of cause.....	20	16	36
53-56	Haemolytic disease of newborn.....	91	66	157
57-60	Anoxic and hypoxic conditions not elsewhere classified.....	107	99	206
61-68	Other conditions of foetus and newborn.....	384	325	709
69-80	Congenital anomalies.....	198	271	469
81-88	Infections of foetus and newborn.....	2	—	2
89-94	Other diseases of foetus and newborn.....	10	9	19
95-100	External causes of injury to newborn.....	—	—	—
<b>All Causes.....</b>		<b>1,925</b>	<b>1,769</b>	<b>3,694</b>

## Section 3.—Deaths\*

No official crude† death rates are available prior to 1921, but some indication of these may be obtained from studies of the early censuses as follows:—

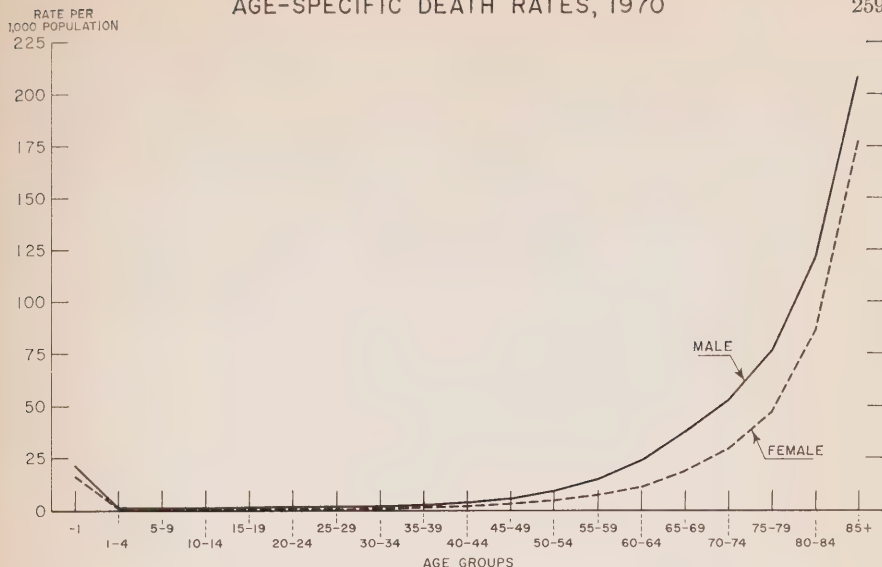
Intercensal Period	Estimated Average Annual Crude Death Rate (per 1,000 Population)	Intercensal Period	Estimated Average Annual Crude Death Rate (per 1,000 Population)
1851-61.....	22	1891-1901.....	16
1861-71.....	21	1901-11.....	13
1871-81.....	19	1911-21.....	13
1881-91.....	18		

As is typical of pioneer populations, Canada had high death rates in the mid-1850s when the country was still in the throes of pioneer settlement. The crude death rate during that period is estimated as between 22 and 25. Although no data are available, it is assumed that, while mortality at all ages was high, the rate among infants, children and young adults must have been particularly high since even in the 1920s mortality in these ages was still quite high. With the gradual increase in population density and in urbanization and improved sanitation and medical services, the crude rate was halved during the 80 years between 1851 and 1930, dropping from about 22 to 11. It declined steadily to slightly over 8 in the late 1950s and dropped to a record low of 7.3 in 1969. This is one of the lowest crude death rates in the world.

Table 1, pp. 241-242, shows the trends in crude death rates since 1951 in the provinces and territories. The low rates shown for Newfoundland and Quebec are attributable mainly to the large proportions of young people in their populations and the relatively high rates for British Columbia to the high proportion of elderly people in that province.

\* For international comparisons, see Section 7, pp. 282-283.

† A crude rate is one based on the total population.



### Subsection 1.—General Mortality

**Age and Sex Distribution of Deaths.**—During the period of national vital statistics (1921 to date) the mortality pattern at all ages has been downward. Of major significance in lowering the over-all death rate were the reductions in infant mortality, in childhood death rates and in those of young adults.

Table 18 shows that, between 1951 and 1969, mortality rates among infants (under one year of age) dropped by one half, and death rates for children 1-4 years of age by more than one half. Rates for older children and young adults also declined steeply. Despite the reduction in infant mortality, more deaths still occur in the first year of life than in any other single year of age. As shown in Table 19, males under age 40 accounted for 22.4 p.c. of all male deaths in 1951 but for only 14.1 p.c. of such deaths in 1969; in 1951, 21.4 p.c. of all female deaths were of persons under age 40, a percentage that declined to 11.3 in 1969. Percentage reductions in the mortality of older males since 1951 were more moderate, and over the 55-69 range they were quite small; the corresponding reductions for older females, however, were very substantial in every age group up to 85.

The sharp declines in mortality in the age groups under 40 has tended to increase the population in the older groups and to raise the average age at death. Over the 1951-69 period, the average age at death among males rose from 56.3 to 62.9 and the average age for females increased still more markedly, from 58.7 to 67.3. Over the same period, the male median age at death rose 3.0 years, from 65.5 to 68.5 and the gain for females was 5.4 years, from 68.8 to 74.2. This means that half of the females who died during 1969 were more than 74 years old.

18.—Percentage Change in Death Rates for Each Age Group, 1951 to 1969

Age Group	Males	Females	Age Group	Males	Females
Under 1 year.....	-49.2	-50.3	45-49 years.....	-10.9	-24.4
1-4 years.....	-52.4	-55.6	50-54 ".....	-10.6	-24.6
5-9 ".....	-40.0	-42.9	55-59 ".....	-7.4	-25.5
10-14 ".....	-37.5	-40.0	60-64 ".....	-5.7	-27.3
15-19 ".....	-7.1	-44.4	65-69 ".....	+5.4	-24.9
20-24 ".....	-5.3	-40.0	70-74 ".....	-3.1	-28.6
25-29 ".....	-11.1	-45.5	75-79 ".....	-11.8	-32.1
30-34 ".....	-23.8	-40.0	80-84 ".....	-8.6	-25.9
35-39 ".....	-8.0	-35.0	85 years or over.....	-9.8	-14.6
40-44 ".....	-12.8	-33.3	All Ages.....	-15.8	-21.8

## 19.—Distribution of Deaths by Age and Sex, 1951, 1961, 1966, 1968 and 1969

Age Group	1951		1961		1966		1968		1969	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
NUMBERS										
Under 1 year.....	8,375	6,298	7,447	5,493	5,138	3,822	4,293	3,290	4,115	3,034
1-4 years.....	1,421	1,151	1,154	844	988	775	830	640	791	620
5-9 ".....	711	466	672	405	669	480	689	436	710	436
10-14 ".....	461	284	527	278	620	318	552	325	582	335
15-19 ".....	721	457	840	322	1,212	467	1,269	492	1,320	455
20-24 ".....	1,009	549	969	342	1,324	403	1,463	482	1,624	494
25-29 ".....	988	660	895	418	980	384	994	443	1,110	446
30-34 ".....	1,070	778	1,041	562	1,054	564	1,048	521	1,035	537
35-39 ".....	1,281	1,015	1,422	880	1,456	845	1,460	827	1,472	827
40-44 ".....	1,756	1,266	1,916	1,099	2,146	1,293	2,230	1,292	2,177	1,319
45-49 ".....	2,463	1,607	2,993	1,617	3,111	1,823	3,306	1,803	3,354	2,035
50-54 ".....	3,525	2,083	4,242	2,237	4,855	2,434	4,643	2,583	4,788	2,540
55-59 ".....	4,741	2,832	5,494	2,749	6,352	3,115	6,655	3,346	6,796	3,443
60-64 ".....	6,465	3,902	7,028	3,725	7,911	4,064	8,199	4,157	8,290	4,261
65-69 ".....	8,007	5,119	8,545	5,304	9,226	5,393	9,840	5,462	10,077	5,562
70-74 ".....	8,748	6,439	10,582	7,058	10,549	7,063	10,500	7,237	10,681	7,150
75-79 ".....	8,254	6,904	10,970	8,290	11,102	8,695	11,337	8,828	11,041	8,952
80-84 ".....	6,232	6,130	8,635	7,871	10,006	9,048	10,413	9,452	10,219	9,543
85 years or over.....	5,336	6,319	7,337	8,782	9,214	10,964	9,813	12,046	10,054	12,222
Totals, All Ages.....	71,564	54,259	82,709	58,276	87,913	61,950	89,534	63,662	90,236	64,241
PERCENTAGES										
Under 1 year.....	11.7	11.6	9.0	9.4	5.8	6.2	4.8	5.2	4.6	4.7
1-4 years.....	2.0	2.1	1.4	1.4	1.1	1.3	0.9	1.0	0.9	1.0
5-9 ".....	1.0	0.9	0.8	0.7	0.8	0.8	0.8	0.7	0.8	0.7
10-14 ".....	0.6	0.5	0.6	0.5	0.7	0.5	0.6	0.5	0.6	0.5
15-19 ".....	1.0	0.8	1.0	0.6	1.4	0.8	1.4	0.8	1.5	0.8
20-24 ".....	1.4	1.0	1.2	0.6	1.5	0.7	1.6	0.8	1.8	0.8
25-29 ".....	1.4	1.2	1.1	0.7	1.1	0.6	1.1	0.7	1.2	0.7
30-34 ".....	1.5	1.4	1.3	1.0	1.2	0.9	1.2	0.8	1.1	0.8
35-39 ".....	1.8	1.9	1.7	1.5	1.7	1.4	1.6	1.3	1.6	1.3
40-44 ".....	2.5	2.3	2.3	1.9	2.4	2.1	2.5	2.0	2.4	2.1
45-49 ".....	3.4	3.0	3.6	2.8	3.5	2.9	3.7	2.8	3.7	3.2
50-54 ".....	4.9	3.8	5.1	3.8	5.5	3.9	5.2	4.1	5.3	4.0
55-59 ".....	6.6	5.2	6.6	4.7	7.2	5.0	7.4	5.3	7.5	5.4
60-64 ".....	9.0	7.2	8.5	6.4	9.0	6.6	9.2	6.5	9.2	6.6
65-69 ".....	11.2	9.4	10.3	9.1	10.5	8.7	11.0	8.6	11.2	8.7
70-74 ".....	12.2	11.9	12.8	12.1	12.0	11.4	11.7	11.4	11.8	11.1
75-79 ".....	11.5	12.7	13.3	14.2	12.6	14.0	12.7	13.9	12.2	13.9
80-84 ".....	8.7	11.3	10.4	13.5	11.4	14.6	11.6	14.8	11.3	14.9
85 years or over.....	7.5	11.6	8.9	15.1	10.5	17.7	11.0	18.9	11.1	19.0
Totals, All Ages.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
RATES PER 1,000 POPULATION										
Under 1 year.....	42.7	34.0	30.5	23.7	25.8	20.2	22.9	18.6	21.7	16.9
1-4 years.....	2.1	1.8	1.3	1.0	1.1	0.9	1.0	0.8	1.0	0.8
5-9 ".....	1.0	0.7	0.6	0.4	0.6	0.4	0.6	0.4	0.6	0.4
10-14 ".....	0.8	0.5	0.6	0.3	0.6	0.3	0.5	0.3	0.5	0.3
15-19 ".....	1.4	0.9	1.2	0.5	1.3	0.5	1.3	0.5	1.3	0.5
20-24 ".....	1.9	1.0	1.7	0.6	1.8	0.5	1.8	0.6	1.8	0.6
25-29 ".....	1.8	1.1	1.5	0.7	1.6	0.6	1.5	0.6	1.6	0.6
30-34 ".....	2.1	1.5	1.6	0.9	1.7	0.9	1.6	0.8	1.6	0.9
35-39 ".....	2.5	2.0	2.3	1.4	2.2	1.3	2.2	1.3	2.3	1.3
40-44 ".....	3.9	3.0	3.4	2.0	3.4	2.0	3.5	2.0	3.4	2.0
45-49 ".....	6.4	4.5	5.8	3.2	5.7	3.3	5.8	3.1	5.7	3.4
50-54 ".....	10.4	6.5	9.6	5.3	9.7	5.0	9.1	5.1	9.3	4.9
55-59 ".....	16.2	10.2	15.2	8.0	15.4	7.7	15.2	7.7	15.0	7.6
60-64 ".....	24.5	16.1	24.0	12.8	24.0	12.2	23.5	11.7	23.1	11.7
65-69 ".....	35.1	24.9	35.7	21.4	36.2	19.5	37.0	18.9	37.0	18.7
70-74 ".....	54.5	41.6	54.0	34.2	53.1	30.9	52.2	30.5	52.8	29.7
75-79 ".....	87.6	73.3	81.8	59.2	79.9	53.9	80.2	51.0	77.3	49.8
80-84 ".....	135.5	120.7	125.1	101.2	124.0	93.6	126.7	91.7	123.9	89.4
85 years or over.....	235.1	212.0	208.9	192.2	213.4	183.4	213.3	184.2	212.1	181.1
Totals, All Ages.....	10.1	7.8	9.0	6.5	8.7	6.2	8.6	6.2	8.5	6.1
Average age at death yrs.	56.3	58.7	59.7	63.1	62.0	65.9	62.9	67.1	62.9	67.3
Median age at death <sup>1</sup> "	65.5	68.8	67.9	72.2	68.4	73.5	68.6	74.0	68.5	74.2

<sup>1</sup> The age above and below which half of the total number of annual deaths occurred.



Table 20 illustrates the variations from province to province in average and median ages at death; these, in turn, are dependent in large measure on the age distribution of the population as well as on varying mortality rates at each age. For example, in Newfoundland a high mortality rate among infants and young children reduces the average and median age for that province, but the reverse is the case in British Columbia and several other provinces with older populations.

**20.—Average and Median Ages at Death, by Sex and Province, 1969**

Province or Territory	Average Age at Death		Median Age at Death <sup>1</sup>	
	Males	Females	Males	Females
	yrs.	yrs.	yrs.	yrs.
Newfoundland.....	58.4	61.8	66.4	72.2
Prince Edward Island.....	65.7	70.0	71.7	77.0
Nova Scotia.....	63.5	69.8	69.5	76.0
New Brunswick.....	62.7	68.3	69.0	75.7
Quebec.....	60.2	65.0	65.8	71.7
Ontario.....	63.6	68.7	68.5	74.9
Manitoba.....	64.5	68.6	70.8	75.3
Saskatchewan.....	65.7	67.5	73.0	75.5
Alberta.....	62.4	64.6	69.6	73.5
British Columbia.....	65.7	69.1	71.3	75.9
Yukon Territory.....	41.8	38.1	...	...
Northwest Territories.....	34.4	28.9	...	...
<b>Canada.....</b>	<b>62.9</b>	<b>67.3</b>	<b>68.5</b>	<b>74.2</b>

<sup>1</sup> The age above and below which half of the total number of annual deaths occurred.

**Deaths in Urban Centres.**—Table 2, pp. 243-246, shows the numbers of deaths in urban centres of 20,000 population or over in 1969 and the average numbers for the period 1961-65; death rates for urban centres cannot be computed for these years since their populations are not known for intercensal years.

**Causes of Death.**—Table 21 summarizes the most recent figures for deaths and death rates in Canada, grouped according to the International Abbreviated List of 50 Causes of the International Classification of Diseases. Close to 77,000, or almost half, of the 154,447 deaths occurring in 1969 were due to diseases of the heart and circulatory system; 29,627 (19 p.c.) to cancer; 11,691 (over 7 p.c.) to accidents; 9,320 to the major respiratory diseases (other than lung cancer); and 6,015 to diseases associated with early infancy. Combined, these accounted for over 85 p.c. of all deaths during the year. Because of the rise in the average age at death during the past 30 years, the proportions of deaths from causes that affect older people have increased. Cancer and diseases of the cardiovascular-renal systems now account for a larger proportion of all deaths than formerly. By the same token, deaths from causes that affect mainly infants, children and young adults have declined.

## MAIN CAUSES OF DEATH, 1931-70

(RATE PER 100,000 POPULATION)



21.—Deaths and Rates per 100,000 Population according to the International Abbreviated List of 50 Causes, 1969

Abbreviated "B" List No.	Detailed List No.	Cause (eighth revision)	Number of Deaths	Rates per 100,000 Population
1	000	Cholera.....	—	—
2	001	Typhoid fever.....	—	—
3	004, 006	Bacillary dysentery and amebiasis.....	2	1
4	008, 009	Enteritis and other diarrhoeal diseases.....	264	1.3
5	010-012	Tuberculosis of respiratory system.....	371	1.8
6	013-019	Other tuberculosis, including late effects.....	155	0.7
7	020	Plague.....	—	—
8	032	Diphtheria.....	5	1
9	033	Whooping cough.....	1	1
10	034	Streptococcal sore throat and scarlet fever.....	1	1
11	036	Meningococcal infection.....	38	0.2
12	040-043	Acute poliomyelitis.....	—	—
13	050	Smallpox.....	—	—
14	055	Measles.....	16	0.1
15	080-083	Typhus and other rickettsioses.....	—	—
16	084	Malaria.....	—	—
17	090-097	Syphilis and its sequelae.....	41	0.2
18	Remainder of			
	000-136	All other infective and parasitic diseases.....	369	1.8
19	140-209	Malignant neoplasms, including neoplasms of lymphatic and haematopoietic tissue.....	29,627	140.7
20	210-239	Benign neoplasms and neoplasms of unspecified nature.....	323	1.5
21	250	Diabetes mellitus.....	2,862	13.6
22	260-269	Avitaminoses and other nutritional deficiency.....	132	0.6
23	280-285	Anaemias.....	284	1.3
24	320	Meningitis.....	149	0.7
25	390-392	Active rheumatic fever.....	34	0.2
26	393-398	Chronic rheumatic heart disease.....	1,430	6.8
27	400-404	Hypertensive disease.....	1,852	8.8
28	410-414	Ischemic heart disease.....	48,394	229.8
29	420-429	Other forms of heart disease.....	3,463	16.4
30	430-438	Cerebrovascular disease.....	15,658	74.3
31	470-474	Influenza.....	742	3.5
32	480-486	Pneumonia.....	5,434	25.8

For footnote, see end of table.

**21.—Deaths and Rates per 100,000 Population according to the International Abbreviated List of 50 Causes, 1969—concluded**

Abbreviated "B" List No.	Detailed List No.	Cause (eighth revision)	Number of Deaths	Rates per 100,000 Population
33	490—493	Bronchitis, emphysema and asthma.....	3,144	14.9
34	531—533	Peptic ulcer.....	935	4.4
35	540—543	Appendicitis.....	110	0.5
36	550—553, 560	Intestinal obstruction and hernia.....	700	3.3
37	571	Cirrhosis of liver.....	1,648	7.8
38	580—584	Nephritis and nephrosis.....	764	3.6
39	600	Hyperplasia of prostate.....	273	2.6 <sup>2</sup>
40	640—645	Abortion.....	13	3.5 <sup>2</sup>
41	630—639	Other complications of pregnancy, childbirth and the		
	650—678	puerperium.....	64	17.3 <sup>3</sup>
42	740—759	Congenital anomalies.....	2,138	10.2
43	764—768	Birth injury, difficult labour and other anoxic and hypoxic		
	772, 776	conditions.....	1,747	8.3
44	760—763, 769—771	Other causes of perinatal mortality.....	2,130	10.1
45	773—775, 777—779	Symptoms and ill-defined conditions.....	1,112	5.3
46	780—796			
	Remainder of			
	240—738	All other diseases.....	13,544	64.3
47	E810—E823	Motor vehicle accidents.....	5,696	27.0
48	E800—E807	All other accidents.....	5,995	28.5
	E825—E949			
49	E950—E959	Suicide and self-inflicted injuries.....	2,291	10.9
50	E960—E999	All other external causes.....	526	2.5
<b>All Causes.....</b>			<b>154,477</b>	<b>733.5</b>

<sup>1</sup> Less than 0.1 per 100,000 population.

<sup>2</sup> Per 100,000 males.

<sup>3</sup> Per 100,000 live births.

Table 22, pp. 264-265, shows that accidents are, by far, the leading cause of death among males from age one to 44 and one of the five major causes above that age; although less predominant among females, accidents are also one of the leading causes of female death beyond the first year of life. Similarly, cancer is among the major causes of death among both males and females at all ages beyond infancy, while cardiovascular diseases are, on the whole, the major cause of death beyond age 45 among both males and females.

**Subsection 2.—Infant Mortality**

Table 1, pp. 241-242, and Table 23 show the striking improvement that has taken place in the mortality rates among infants (under one year of age) during the past 19 years. Although 52,874 of the 2,364,071 children born in the six years 1964-69 died before reaching their first birthday, over 169,000 others lived who *would have died* at the infant mortality rate prevailing in the period 1926-30. This improvement is attributable to many factors—the higher proportion of births taking place in hospital or under proper prenatal and postnatal care, better supervision of water supplies, improved sanitation, pasteurization of milk, the use of antibiotics, improved home environment as a result of higher living standards and, in recent years, the generally lower age of mothers.

The variations that exist in infant mortality rates from province to province and from one locality to another may be explained by differences in the extent to which these factors apply provincially or locally. Among the provinces, the 1969 male infant mortality rates ranged from a low of 19.8 to a high of 26.3, compared with the national average of 21.7—the latter including the high rate among the Northwest Territories aboriginal population. Female rates ranged from 15.3 to 23.9, compared with the national rate of 16.9. Although the national and provincial rates for both sexes had been declining steadily for some years,



## 22.—Leading Causes of Death, by Sex at Various Age Groups, 1969

(Rates per 100,000 population)

Cause	Males		Cause	Females		Cause	Both Sexes	
	No.	Rate		No.	Rate		No.	Rate

UNDER 1 YEAR <sup>1</sup>								
Anoxia and hypoxia.....	879	463.1	Congenital anomalies.....	691	384.2	Congenital anomalies.....	1,469	397.4
Congenital anomalies.....	778	409.9	Anoxia and hypoxia.....	576	320.3	Anoxia and hypoxia.....	1,455	383.6
Immaturity.....	608	320.3	Immaturity.....	447	238.5	Immaturity.....	1,055	285.4
Pneumonia.....	347	182.8	Pneumonia.....	237	131.8	Pneumonia.....	584	185.0
Conditions of placenta and umbilical cord.....	257	135.4	Conditions of placenta and umbilical cord.....	152	84.5	Conditions of placenta and umbilical cord.....	409	110.6

1—4 YEARS								
Accidents.....	346	43.0	Accidents.....	207	27.1	Accidents.....	553	35.3
Cancer.....	88	10.9	Congenital anomalies.....	126	16.5	Congenital anomalies.....	213	13.6
Congenital anomalies.....	87	10.8	Cancer.....	60	7.9	Cancer.....	148	9.4
Pneumonia.....	57	7.1	Pneumonia.....	57	7.5	Pneumonia.....	114	7.3
Acute respiratory infections.....	17	2.1	Enteritis and other diarrhoeal diseases.....	20	2.6	Enteritis and other diarrhoeal diseases.....	36	2.3

5—19 YEARS								
Accidents.....	1,715	50.9	Accidents.....	636	19.7	Accidents.....	2,351	35.6
Cancer.....	283	8.4	Cancer.....	154	4.8	Cancer.....	437	6.6
Congenital anomalies.....	118	3.5	Congenital anomalies.....	83	2.6	Congenital anomalies.....	175	2.7
Pneumonia.....	92	2.7	Pneumonia.....	43	1.3	Suicide.....	139	2.1
Pneumonia.....	51	1.5	Cardiovascular diseases.....	37	1.1	Pneumonia.....	94	1.4

20—44 YEARS								
Accidents.....	3,192	90.1	Cancer.....	1,662	30.4	Accidents.....	3,870	55.0
Cardiovascular diseases.....	1,344	38.0	Accidents.....	678	19.4	Cardiovascular diseases.....	1,923	27.3
Cancer.....	841	23.7	Cardiovascular diseases.....	579	16.6	Cancer.....	1,903	27.0
Suicide.....	739	20.9	Suicide.....	288	8.2	Suicide.....	1,027	14.6
Cirrhosis of liver.....	163	4.6	Cirrhosis of liver.....	95	2.7	Cirrhosis of liver.....	258	3.7

## 45-64 YEARS

Cardiovascular diseases.....	11,594	606.5	Cancer.....	4,764	245.9	Cardiovascular diseases.....	15,861	412.1
Cancer.....	5,415	283.3	Cardiovascular diseases.....	4,267	220.3	Cancer.....	10,179	264.5
Accidents.....	1,669	87.3	Accidents.....	561	29.0	Accidents.....	2,230	57.9
Bronchitis, emphysema and asthma.....	1,666	34.8	Diabetes mellitus.....	314	16.2	Cirrhosis of liver.....	862	22.4
Suicide.....	577	30.2	Cirrhosis of liver.....	298	15.4	Suicide.....	859	22.3

## 65 YEARS OR OVER

Cardiovascular diseases.....	30,902	4,136.8	Cardiovascular diseases.....	27,865	3,123.5	Cardiovascular diseases.....	58,767	3,555.3
Cancer.....	9,842	1,317.5	Cancer.....	7,098	795.7	Cancer.....	16,940	1,033.5
Pneumonia.....	2,138	286.2	Pneumonia.....	1,687	189.1	Pneumonia.....	3,825	233.4
Bronchitis, emphysema and asthma.....	1,793	240.0	Diabetes mellitus.....	1,230	137.9	Accidents.....	2,368	144.5
Accidents.....	1,341	179.5	Accidents.....	1,027	115.1	Bronchitis, emphysema and asthma.....	2,175	132.7

## ALL AGES

Cardiovascular diseases.....	43,902	415.6	Cardiovascular diseases.....	32,762	312.1	Cardiovascular diseases.....	76,664	364.0
Cancer.....	16,480	156.0	Cancer.....	13,147	125.2	Cancer.....	29,627	140.7
Accidents.....	8,443	79.9	Accidents.....	3,248	30.9	Accidents.....	11,691	55.5
Pneumonia.....	3,095	29.3	Pneumonia.....	2,339	22.3	Pneumonia.....	5,434	25.8
Bronchitis, emphysema and asthma.....	2,531	24.0	Diabetes mellitus.....	1,610	15.3	Major diseases of early infancy.....	3,877	18.4

<sup>1</sup> Per 100,000 live births.

and despite, for some unknown reason, some reversals in provincial rates during 1968, the 1969 rates have declined to new record lows in most provinces.

Table 23 shows that mortality among male infants is roughly 20-25 p.c. higher than that among female infants for Canada, with wider variations for the individual provinces. For the country as a whole, out of every 1,000 infant boys born alive in 1969, 22 died before reaching their first birthday, whereas out of every 1,000 infant girls born alive, 17 died within one year. As already pointed out, there are on the average 1,055 males born to every 1,000 females but, because male infant mortality is higher, the excess of males is reduced greatly by the end of the first year. For example, in 1964-69 there were 1,213,833 male children born compared with 1,150,240 female children, an excess of 63,593 or 5.5 p.c.; in the same period, 30,240 male children died during their first year compared with 22,634 female children so that the excess of males at one year of age was reduced to 55,987 or 4.9 p.c.

**23.—Distribution of Infant Deaths, by Province and Sex, 1951-69**

Province and Year	Males	Fe- males	Rate per 1,000 Male Live Births	Rate per 1,000 Female Live Births	Province or Territory and Year	Males	Fe- males	Rate per 1,000 Male Live Births	Rate per 1,000 Female Live Births
	No.	No.				No.	No.		
Newfoundland.....1951	361	276	60.3	48.0	Manitoba—concl. 1968	215	148	23.8	17.6
1961	335	253	41.7	33.5	1969	238	150	26.3	17.1
1966	237	158	32.8	23.0					
1967	214	153	33.0	24.1	Saskatchewan.....1951	353	323	31.8	30.4
1968	184	125	28.2	19.8	1961	373	245	30.3	21.0
1969	151	127	22.5	20.2	1966	278	183	28.3	19.9
P. E. Island.....1951	60	30	43.7	23.5	1967	267	198	28.9	22.6
1961	55	38	37.4	27.8	1968	271	197	28.9	22.4
1966	34	23	29.9	21.7	1969	233	162	25.9	18.9
1967	29	19	27.3	19.3					
1968	42	14	38.8	13.7	Alberta.....1951	531	358	38.6	27.0
1969	21	24	20.9	23.9	1961	612	432	30.8	22.7
					1966	376	264	24.2	17.6
Nova Scotia.....1951	344	250	38.9	30.2	1967	329	286	21.0	19.1
1961	309	229	31.0	24.3	1968	342	265	21.9	18.3
1966	221	163	28.1	22.1	1969	355	232	22.6	15.3
1967	187	139	25.5	19.9					
1968	159	137	22.3	20.6	British Columbia...1951	487	352	33.8	25.8
1969	164	103	23.5	15.5	1961	534	411	27.1	21.8
					1966	440	339	26.5	21.4
New Brunswick.....1951	472	363	57.6	46.0	1967	398	305	23.6	19.0
1961	248	186	29.1	23.0	1968	364	297	21.1	18.0
1966	163	143	24.9	23.2	1969	370	271	20.4	15.7
1967	172	138	27.3	22.8					
1968	124	111	21.0	19.5	Yukon Territory....1951	10	9	57.8	53.3
1969	126	95	20.6	17.0	1961	13	10	45.8	36.5
					1966	9	11	48.6	59.8
Quebec.....1951	3,335	2,486	53.7	42.3	1967	4	5	20.1	26.9
1961	2,464	1,855	34.7	28.0	1968	6	5	33.3	26.3
1966	1,565	1,211	27.7	22.7	1969	12	6	48.6	27.9
1967	1,303	1,044	25.2	21.0					
1968	1,180	917	23.6	19.6	Northwest Territories.....1951	43	27	135.6	81.3
1969	1,082	860	21.9	18.6	1961	73	51	128.1	93.2
					1966	44	46	73.8	81.9
Ontario.....1951	2,010	1,535	33.9	27.6	1967	42	33	67.3	56.3
1961	2,090	1,536	25.9	20.0	1968	44	40	67.3	62.1
1966	1,540	1,129	22.8	17.5	1969	37	31	58.4	53.3
1967	1,446	1,069	22.1	17.3					
1968	1,362	1,034	21.0	16.8					
1969	1,326	973	19.8	15.3	Canada.....1951	8,375	6,298	42.7	34.0
					1961	7,447	5,493	30.5	23.7
Manitoba.....1951	369	289	35.6	30.2	1966	5,138	3,822	25.8	20.2
1961	341	247	28.6	21.7	1967	4,602	3,549	24.2	19.6
1966	231	152	25.1	17.3	1968	4,293	3,290	22.9	18.6
1967	211	160	24.0	19.0	1969	4,115	3,034	21.7	16.9



**Infant Mortality in Urban Centres.**—Because of the relatively small numbers of infant deaths in individual cities and towns, the rates for these centres usually vary widely from year to year. As is evident from Table 2, pp. 243–246, many cities and towns have maintained consistently low rates as compared with the national rate or the rate for the province in which they are situated, while others have consistently higher rates.

**Causes of Infant Deaths.**—Of the 7,149 infants dying during 1969 before reaching their first birthday, 3,873—or 54 out of every 100—died of conditions usually associated with very early infancy or delivery. Of these, 1,455 died of anoxia or hypoxia (absence or deficiency of oxygen); 1,055 were due to immaturity of the foetus; 510 to some disease or condition in the mother, difficult labour or other complication of pregnancy or delivery; and 409 to some condition in the placenta or umbilical cord. Congenital malformations accounted for an additional 1,469 deaths. Of the 742 deaths from respiratory diseases, 584 were due to pneumonia, and 330 deaths were caused by accidents or other violence. Of the 167 deaths from infective and parasitic diseases, 96 were due to dysentery.

**24.—Infant Mortality and Rates per 100,000 Live Births, by Cause, 1969**

International List No.	Cause of Death (eighth revision)	Number of Deaths	Rates per 100,000 Live Births
	<b>Infective and Parasitic Diseases</b> .....	<b>167</b>	<b>45.2</b>
004, 008–009	Dysentery.....	96	26.0
010 019	Tuberculosis.....	1	0.3
033	Whooping cough.....	—	—
036	Meningococcal infection.....	10	2.7
038	Septicaemia.....	27	7.3
052	Chickenpox.....	2	0.5
055	Measles.....	2	0.5
056	Rubella.....	—	—
062–066	Viral encephalitis.....	5	1.4
074	Coxsackie virus diseases.....	2	0.5
090–097	Syphilis.....	1	0.3
	Other infective and parasitic diseases.....	21	5.7
	<b>Neoplasms</b> .....	<b>28</b>	<b>7.6</b>
140–209	Malignant neoplasms.....	20	5.4
191–192	Brain and nervous system.....	6	1.6
204–207	Leukaemia.....	7	1.9
	Other malignant neoplasms.....	7	1.9
210–228	Benign neoplasms.....	7	1.9
230–239	Other neoplasms.....	1	0.3
	<b>Allergic, Endocrine and Metabolic Diseases</b> .....	<b>57</b>	<b>15.4</b>
251	Disorders of pancreatic, internal secretion, other than diabetes mellitus.....	4	1.1
254	Diseases of thymus gland.....	4	1.1
260–269	Avitaminoses and other nutritional deficiency.....	11	3.0
270–279	Other metabolic diseases.....	31	8.4
	Other of 240–279.....	7	1.9
	<b>Blood Diseases</b> .....	<b>21</b>	<b>5.7</b>
280–285	Anaemias.....	4	1.1
286	Coagulation defects.....	4	1.1
	Other of 280–289.....	13	3.5
290–315	<b>Mental Disorders</b> .....	<b>1</b>	<b>0.3</b>
	<b>Diseases of the Nervous System and Sense Organs</b> .....	<b>121</b>	<b>32.7</b>
320	Meningitis.....	49	13.3
343	Cerebral spastic infantile paralysis.....	12	3.2
381–383	Otitis media and mastoiditis.....	26	7.0
	Other of 320–389.....	34	9.2
390–458	<b>Diseases of the Circulatory System</b> .....	<b>19</b>	<b>5.1</b>
	<b>Diseases of the Respiratory System</b> .....	<b>742</b>	<b>200.7</b>
460–466	Acute respiratory infections.....	61	16.5
470–474	Influenza.....	21	5.7
480–486	Pneumonia.....	584	158.0
490–493	Bronchitis, emphysema and asthma.....	19	5.1
	Other of 460–519.....	57	15.4

## 24.—Infant Mortality and Rates per 100,000 Live Births, by Cause, 1969—concluded

International List No.	Cause of Death (eighth revision)	Number of Deaths	Rates per 100,000 Live Births
	<b>Diseases of the Digestive System.....</b>	<b>102</b>	<b>27.6</b>
550—553	Hernia.....	46	12.4
560	Intestinal obstruction without mention of hernia.....	10	2.7
561	Non-infectious gastro-enteritis and colitis.....	8	2.2
	Other of 520—577.....	38	10.3
580—629	<b>Diseases of the Genito-Urinary System.....</b>	<b>13</b>	<b>3.5</b>
680—709	<b>Diseases of the Skin and Subcutaneous Tissue.....</b>	<b>5</b>	<b>1.4</b>
710—738	<b>Diseases of the Musculoskeletal System and Connective Tissue.....</b>	<b>1</b>	<b>0.3</b>
	<b>Congenital Anomalies.....</b>	<b>1,469</b>	<b>397.4</b>
740—743	Brain, spinal cord and nervous system.....	487	131.7
746	Heart.....	477	129.0
747	Other circulatory system.....	79	21.4
748	Respiratory system.....	49	13.3
749—751	Digestive system.....	106	28.7
753	Urinary system.....	63	17.0
759	Multiple systems.....	94	25.4
	Other of 740—759.....	114	30.8
	<b>Certain Causes of Perinatal Mortality.....</b>	<b>3,873</b>	<b>1,047.8</b>
760—761	Maternal conditions unrelated to pregnancy.....	41	11.1
762—763	Maternal toxæmia and infection.....	52	14.1
764—768	Difficult labour.....	84	22.7
769	Other complications of pregnancy and childbirth.....	333	90.1
770—771	Conditions of placenta and umbilical cord.....	409	110.6
772	Birth injury.....	205	55.5
774—775	Haemolytic disease of newborn.....	131	35.4
776	Anoxia and hypoxia.....	1,455	393.6
777	Immaturity.....	1,055	285.4
	Other of 760—779.....	108	29.2
780—796	<b>Symptoms and Ill-Defined Conditions.....</b>	<b>200</b>	<b>54.1</b>
	<b>Accidents, Poisonings and Violence.....</b>	<b>330</b>	<b>89.3</b>
E810—E823	Motor vehicle accidents.....	18	4.9
E880—E887	Accidental falls.....	12	3.2
E890—E899	Fire accidents.....	8	2.2
E911—E912	Inhalation and ingestion.....	187	50.6
E913	Mechanical suffocation.....	78	21.1
	Other of E 800—E 999.....	27	7.3
	<b>All Causes.....</b>	<b>7,149</b>	<b>1,934.0</b>

**Age at Death.**—Of the 7,149 infants who died within a year of their birth, 5,138, or almost 72 p.c., were less than one month old—3,086 died during the first day of life, 1,528 from the second to the seventh day, and 524 during the three following weeks.

## 25.—Infant Deaths, by Age, 1969

Time of Death	Number	Per-centage	Cumulative		Time of Death	Number	Per-centage	Cumulative	
			Number	Per-centage				Number	Per-centage
1st day.....	3,086	43.2	3,086	43.2	1st month.....	5,138	71.9	5,138	71.9
2nd ".....	646	9.0	3,732	52.2	2nd ".....	491	6.9	5,629	78.7
3rd ".....	378	5.3	4,110	57.5	3rd ".....	408	5.7	6,037	84.4
4th ".....	215	3.0	4,325	60.5	4th ".....	300	4.2	6,337	88.6
5th ".....	132	1.8	4,457	62.3	5th ".....	224	3.1	6,561	91.8
6th ".....	87	1.2	4,544	63.6	6th ".....	156	2.2	6,717	94.0
7th ".....	70	1.0	4,614	64.5	7th ".....	112	1.6	6,829	95.5
					8th ".....	82	1.1	6,911	96.7
1st week.....	4,614	64.5	4,614	64.5	9th ".....	63	0.9	6,974	97.6
2nd ".....	264	3.7	4,878	68.2	10th ".....	69	1.0	7,043	98.5
3rd ".....	130	1.8	5,008	70.1	11th ".....	56	0.8	7,099	99.3
4th ".....	130	1.8	5,138	71.9	12th ".....	50	0.7	7,149	100.0

*Neonatal Mortality.*—Deaths occurring within the first four weeks following birth are conventionally referred to as 'neonatal' deaths. Table 25 shows that about 72 p.c. of all infant deaths occurred in this hazardous neonatal period during 1969 and, as would be expected, were caused mainly by conditions associated with pregnancy or delivery. Table 26 gives numbers and rates of neonatal deaths for 1951-69.

The neonatal death rate has dropped from 21.0 in 1951-60 to 13.9 in 1969, with corresponding improvements in all provinces. Variations in provincial rates are narrowing, the 1969 rates ranging from 12.1 to 15.9. However, as the rate approaches a 'hard-core' level, improvements during the past decade have not been as dramatic as they were during the previous two decades.

26.—Neonatal Mortality,<sup>1</sup> by Province, 1951-69

Year	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Canada
NUMBERS													
Av. 1951-55....	294	45	342	391	3,241	2,476	395	426	552	535	8	30	8,736
" 1956-60....	324	54	334	322	3,137	2,652	402	414	622	648	8	54	8,970
" 1961-65....	299	48	318	261	2,679	2,494	356	389	632	559	10	39	8,085
1966.....	252	42	256	191	2,013	1,956	249	309	435	506	9	35	6,253
1967.....	235	40	231	205	1,665	1,789	231	309	412	475	5	31	5,628
1968.....	177	40	193	154	1,511	1,832	228	314	436	443	8	40	5,376
1969.....	187	32	188	149	1,434	1,722	268	268	420	429	11	30	5,138
RATES PER 1,000 LIVE BIRTHS													
Av. 1951-55....	22.4	16.5	18.7	23.7	25.2	19.2	18.5	18.1	17.8	17.1	19.9	45.0	21.0
" 1956-60....	21.7	20.1	17.5	19.4	22.4	17.4	18.0	17.2	16.8	16.6	15.5	57.1	19.1
" 1961-65....	19.8	17.2	17.2	16.7	20.4	16.3	16.1	17.1	17.1	15.2	20.4	33.4	17.7
1966.....	17.9	19.1	16.8	15.0	18.3	14.8	13.8	16.2	14.2	15.6	24.4	30.2	16.1
1967.....	18.3	19.5	16.1	16.6	16.4	14.0	13.4	17.2	13.4	14.4	13.0	25.6	15.2
1968.....	13.8	19.0	14.0	13.3	15.6	14.5	13.1	17.3	14.5	13.2	21.6	30.8	14.8
1969.....	14.4	15.9	13.8	12.7	15.0	13.2	15.0	15.2	13.6	12.1	23.8	24.7	13.9

<sup>1</sup> Includes deaths under 28 days.

*Perinatal Mortality.*—'Perinatal' mortality—the combined total of stillbirths and deaths of live-born infants occurring 'around' the natal period—is a relatively new vital statistics concept. Since such deaths frequently have the same underlying causes associated with pregnancy or delivery, regardless of whether they occur before or after delivery, they are generally considered as including the combined total of stillbirths occurring after at least 28 weeks pregnancy and deaths of live-born infants who fail to survive the first week of life.

In 1969 there were 8,308 such 'deaths', of which 3,694 were stillborn and 4,614 live-born but failed to survive one week. The national rate of such deaths was 22.3 for every 1,000 total deliveries, a drop from 23.7 in 1968. This perinatal rate has declined slowly but steadily from 65.2 in 1921.



## Subsection 3.—Maternal Mortality

As indicated in Table 1, pp. 241-242, the number of mothers who die as the result of pregnancy or childbirth has been greatly reduced during the past two decades. An all-time low number of 77 was recorded in 1969 compared with 99 in the previous year and an annual average of 353 as recently as 1951-55. Since 1951, the rate of maternal mortality per 10,000 births has been under 10; since 1959 it has been under five. With this improvement, Canada's maternal death rate (2.1 in 1969) compares more favourably with those of other countries (see p. 283). Mortality among unmarried mothers is higher than among married mothers.

**Causes of Maternal Deaths.**—Table 27 shows that, of the 77 maternal deaths in 1969, 11 resulted from complications arising during pregnancy, another 12 from some type of toxæmia, 22 from a complication of delivery, 19 from a post-delivery complication and 13 from abortive delivery.

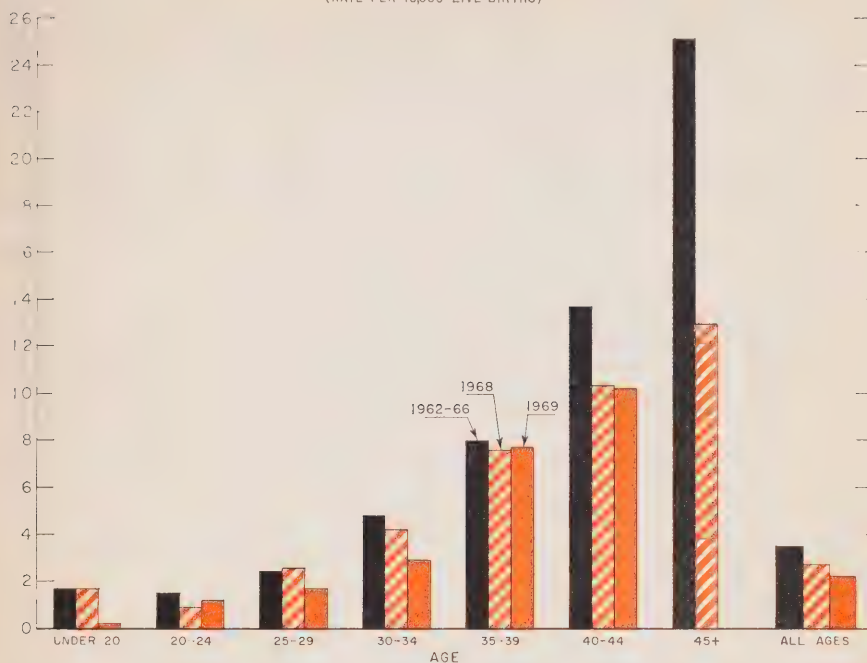
27.—Maternal Mortality and Rates per 100,000 Live Births, by Cause, 1969

Inter-national List No.	Cause of Death (eighth revision)	Number of Deaths	Rate per 100,000 Live Births
	<b>Complications of Pregnancy</b> .....	<b>11</b>	<b>3</b>
630	Infections of genital tract.....	1	--
631	Ectopic pregnancy.....	3	1
632	Haemorrhage.....	1	--
633, 634	Other complications.....	6	2
	<b>Urinary Infections and Toxæmias of Pregnancy and the Puerperium</b> .....	<b>12</b>	<b>3</b>
635	Urinary infections.....	—	—
636	Renal disease.....	3	1
637	Pre-eclampsia, eclampsia and toxæmia, unspecified.....	8	2
638, 639	Other toxæmias.....	1	--
	<b>Abortion</b> .....	<b>13</b>	<b>4</b>
640	Induced for medical indications.....	—	—
641	Induced for other legal indications.....	—	—
642	Induced for other reasons.....	11	3
643	Spontaneous.....	2	1
644	Not specified as induced or spontaneous.....	—	—
645	Other.....	—	—
	<b>Delivery with Complication(s)</b> .....	<b>22</b>	<b>6</b>
651	Placenta prævia or antepartum haemorrhage.....	6	2
652	Retained placenta.....	2	1
653	Other postpartum haemorrhage.....	5	1
654, 655	Abnormality of bony pelvis and foetopelvic disproportion.....	—	—
656, 657	Malpresentation and prolonged labour of other origin.....	1	--
659	Rupture of uterus.....	3	1
658, 660	Other obstetrical trauma.....	2	1
661	Other complications.....	3	1
	<b>Complications of the Puerperium</b> .....	<b>19</b>	<b>5</b>
670	Sepsis.....	2	1
671	Phlebitis and thrombosis.....	1	--
672	Pyrexia of unknown origin.....	—	—
673	Pulmonary embolism.....	9	2
674	Cerebral haemorrhage.....	3	1
675	Blood dyscrasias.....	1	--
676-678	Other and unspecified complications.....	3	1
	<b>All Causes</b> .....	<b>77</b>	<b>21</b>

**Age at Death.**—Table 28 shows the distribution of maternal deaths by age group; the average age at death is about four or five years higher than the average age of all mothers at the time of childbirth. Although death rates for all age groups of mothers have been declining, there have been rather significant changes in the rates. The rate for mothers in the age group 30-34 is far higher than the rate for the 20-24 group, and increases with the age of the mother.

## MATERNAL DEATHS

(RATE PER 10,000 LIVE BIRTHS)



28.—Maternal Mortality and Rates per 10,000 Live Births, by Age Group, 1967-69  
(Exclusive of Newfoundland)

Age Group	Maternal Deaths						Rates per 10,000 Live Births		
	1967		1968		1969		1967	1968	1969
	No.	p.c.	No.	p.c.	No.	p.c.			
Under 20 years.....	5	5.9	7	7.3	1	1.3	1.2	1.7	0.2
20 — 24 ".....	21	24.7	11	11.5	15	19.5	1.7	0.9	1.2
25 — 29 ".....	13	15.3	25	26.0	18	23.4	1.3	2.5	1.7
30 — 34 ".....	22	25.9	22	22.9	15	19.5	4.0	4.2	2.9
35 — 39 ".....	13	15.3	21	21.9	20	26.0	4.1	7.6	7.7
40 — 44 ".....	8	9.4	9	9.4	8	10.4	8.0	10.3	10.2
45 — 49 ".....	3	3.5	1	1.0	—	—	37.7	12.9	—
50 years or over.....	—	—	—	—	—	—	—	—	—
<b>Totals, All Ages.....</b>	<b>85</b>	<b>100.0</b>	<b>96</b>	<b>100.0</b>	<b>77</b>	<b>100.0</b>	<b>2.4</b>	<b>2.7</b>	<b>2.2</b>
Average age at death.....yrs.	30.7		31.2		31.5		...	...	...
Median age at death <sup>1</sup> ..... "	30.8		31.1		31.5		...	...	...

<sup>1</sup> The age below and above which half of the maternal deaths occurred.

### Section 4.—Natural Increase\*

The excess of births over deaths, commonly referred to as 'natural increase', is a very important factor in the growth of a population. Although the collection of Canadian birth and death statistics began only in 1921, some idea of the rate of natural increase in the early Canadian population may be learned from the estimates shown at the beginning of Sections 2 and 3, which resulted in the following natural increase rates:—

<i>Intercensal Period</i>	<i>Estimated Average Annual Natural Increase Rate (per 1,000 Population)</i>	<i>Intercensal Period</i>	<i>Estimated Average Annual Natural Increase Rate (per 1,000 Population)</i>
1851-61.....	23	1891-1901.....	14
1861-71.....	19	1901-11.....	18
1871-81.....	18	1911-21.....	16
1881-91.....	16		

Because of the combination of high birth rates and declining death rates—despite the fact that death rates were still relatively high—the annual rate of natural increase during the late 1800s and early 1900s varied between 14 and 23; in other terms, the population increased at the rate of 1.5 p.c. to 2.5 p.c. each year by natural increase alone, regardless of any increase attributable to immigration. During the 1920s and early 1930s the birth rate declined more than the death rate and the natural increase rate dropped to a record low of 9.7 in 1937. But higher birth rates during and after World War II and a gradually declining death rate caused the natural increase rate to rise steadily from 10.9 in 1939 to a record 20.3 in 1954. Although after that year there was a steady drop because of declining birth rates, the natural increase rate in 1969 was still relatively high at 10.3, up slightly from 10.2 the previous year.

Table 1, pp. 241-242, gives average rates of natural increase in the provinces for five-year periods 1951-65 and for single years 1966-69. Table 29 gives the provincial figures for males and females separately for 1951, 1961 and 1966-69. High birth rates and declining death rates have given Newfoundland, Alberta, New Brunswick and Saskatchewan the highest rates of natural increase in Canada in recent years (excluding the Yukon and Northwest Territories).

\* For international comparisons, see Section 7, pp. 282-283.

#### 29.—Natural Increase and Rates per 1,000 Population, by Sex and Province, 1951, 1961 and 1966-69

Province and Year	Excess of Births Over Deaths	Rate per 1,000 Popu- lation	Males		Females	
			Number	Rate per 1,000 Males	Number	Rate per 1,000 Females
Newfoundland.....1951	8,734	24.2	4,369	23.6	4,365	24.8
.....1961	12,553	27.5	6,350	27.0	6,203	27.8
.....1966	11,012	22.3	5,406	21.4	5,606	23.2
.....1967	9,727	19.5	4,663	18.3	5,064	20.7
.....1968	9,697	19.1	4,683	18.1	5,014	20.2
.....1969	9,995	19.5	4,940	18.8	5,055	20.1
Prince Edward Island.....1951	1,747	17.9	872	17.4	875	18.2
.....1961	1,860	17.8	925	17.3	935	18.2
.....1966	1,151	10.6	538	9.8	613	11.4
.....1967	1,009	9.3	458	8.3	551	10.2
.....1968	1,115	10.1	497	8.9	618	11.4
.....1969	1,002	9.1	424	7.6	578	10.6
Nova Scotia.....1951	11,313	17.6	5,596	17.2	5,717	18.0
.....1961	13,247	18.0	6,435	17.2	6,812	18.8
.....1966	8,742	11.5	4,122	10.8	4,620	12.3
.....1967	7,674	10.1	3,490	9.2	4,184	11.1
.....1968	7,164	9.4	3,348	8.8	3,816	10.1
.....1969	6,955	9.1	3,102	8.1	3,853	10.1



**29.—Natural Increase and Rates per 1,000 Population, by Sex and Province, 1951, 1961 and 1966-69—concluded**

Province or Territory and Year	Excess of Births Over Deaths	Rate per 1,000 Population	Males		Females	
			Number	Rate per 1,000 Males	Number	Rate per 1,000 Females
New Brunswick.....1951	11,202	21.8	5,522	21.3	5,680	22.1
1961	11,895	19.8	5,844	19.3	6,051	20.5
1966	7,951	12.9	3,789	12.2	4,162	13.6
1967	7,459	12.0	3,451	11.1	4,008	13.0
1968	6,702	10.7	3,080	9.8	3,622	11.7
1969	6,846	10.9	3,318	10.6	3,528	11.3
Quebec.....1951	86,030	21.2	42,961	21.2	43,069	21.2
1961	100,130	19.1	49,741	18.9	50,389	19.2
1966	71,198	12.3	34,141	11.8	37,057	12.8
1967	62,806	10.7	29,295	10.0	33,511	11.4
1968	57,085	9.6	26,857	9.1	30,228	10.2
1969	55,507	9.3	26,131	8.8	29,376	9.8
Ontario.....1951	70,846	15.4	34,737	15.0	36,109	15.8
1961	106,666	17.1	51,538	16.4	55,128	17.8
1966	77,771	11.2	36,436	10.5	41,335	11.9
1967	72,631	10.1	33,857	9.5	38,774	10.8
1968	70,705	9.7	33,034	9.1	37,671	10.3
1969	74,691	10.0	35,116	9.4	39,575	10.6
Manitoba.....1951	13,207	17.0	6,388	16.2	6,819	17.9
1961	15,919	17.3	7,445	15.9	8,474	18.7
1966	10,069	10.5	4,462	9.2	5,607	11.7
1967	9,551	9.9	4,225	8.7	5,326	11.1
1968	9,546	9.8	4,339	8.9	5,207	10.8
1969	9,769	10.0	4,355	8.9	5,414	11.1
Saskatchewan.....1951	15,293	18.4	7,192	16.6	8,101	20.4
1961	16,887	18.2	7,766	16.2	9,121	20.5
1966	11,610	12.1	5,220	10.7	6,390	13.7
1967	10,552	11.0	4,564	9.3	5,988	12.8
1968	10,699	11.2	4,757	9.7	5,942	12.6
1969	10,100	10.5	4,328	8.9	5,772	12.3
Alberta.....1951	19,836	21.2	9,331	19.0	10,505	23.5
1961	30,051	22.5	14,194	20.6	15,857	24.7
1966	20,915	14.3	9,547	12.8	11,368	15.9
1967	21,168	14.2	9,787	12.9	11,381	15.6
1968	20,186	13.3	9,539	12.3	10,647	14.2
1969	20,934	13.4	9,543	12.0	11,391	14.9
British Columbia.....1951	16,439	14.1	7,107	11.9	9,332	16.4
1961	24,188	14.9	10,829	13.1	13,359	16.7
1966	16,212	8.6	6,751	7.1	9,461	10.2
1967	16,729	8.6	7,111	7.2	9,618	10.0
1968	16,859	8.4	7,180	7.1	9,679	9.8
1969	18,006	8.7	7,630	7.3	10,376	10.2
Yukon Territory.....1951	257	28.6	115	20.9	142	39.4
1961	464	31.7	218	26.7	246	38.1
1966	287	20.0	135	17.3	152	23.1
1967	312	20.8	150	18.3	162	23.8
1968	286	19.1	119	14.7	167	24.2
1969	367	24.5	180	22.2	187	27.1
Northwest Territories.....1951	365	22.8	164	18.2	201	28.7
1961	855	37.2	409	31.9	446	43.8
1966	929	32.3	468	30.1	461	35.0
1967	993	34.2	496	31.4	497	37.7
1968	1,070	34.5	522	31.3	548	38.3
1969	998	31.2	495	28.8	503	34.0
<b>Canada.....1951</b>	<b>255,269</b>	<b>18.2</b>	<b>124,354</b>	<b>17.5</b>	<b>130,915</b>	<b>18.9</b>
<b>1961</b>	<b>334,715</b>	<b>18.4</b>	<b>161,694</b>	<b>17.5</b>	<b>173,021</b>	<b>19.2</b>
<b>1966</b>	<b>237,847</b>	<b>11.9</b>	<b>111,015</b>	<b>11.0</b>	<b>126,832</b>	<b>12.7</b>
<b>1967</b>	<b>220,611</b>	<b>10.8</b>	<b>101,547</b>	<b>9.9</b>	<b>119,064</b>	<b>11.7</b>
<b>1968</b>	<b>211,114</b>	<b>10.2</b>	<b>97,955</b>	<b>9.4</b>	<b>113,159</b>	<b>11.0</b>
<b>1969</b>	<b>215,170</b>	<b>10.3</b>	<b>99,562</b>	<b>9.4</b>	<b>115,608</b>	<b>11.0</b>

The rates of natural increase are higher for females than for males in all provinces because of the higher death rates for males. In the western provinces particularly, the ratio of males to females in the total population is higher than in other parts of Canada and this in itself tends to lower the rate of natural increase. In Canada, a country with a fairly young population and where immigration has been on a large scale, an excess of males is to be expected but the higher rate of natural increase for females may gradually reduce this excess. The trend is toward an eventual excess of females in the total population—as there now is in most European countries—unless immigration again raises the male ratio or death rates among males are greatly reduced.

**Natural Increase in Urban Centres.**—The classification of births and deaths by place of residence makes it possible to compile the natural increase in the population of urban centres; natural increase for centres of over 20,000 population can be compiled from the birth and death figures given in Table 2, pp. 243-246.

## Section 5.—Marriages and Divorces

### Subsection 1.—Marriages\*

In 1969 a record 182,183 marriages were solemnized in Canada, mainly because of the relative increase of men and women in the prime marrying ages—the late teens and the early 20s. This growing proportion of young men and women has advanced the crude marriage rate from a low of 6.9 per 1,000 population in 1963 to 8.7 in 1969. Table 30 gives the number of marriages and the marriage rates for Canada and the provinces for 1951, 1961 and 1966-69, together with percentages of brides and bridegrooms according to place of birth. For the country as a whole, 81 p.c. of the bridegrooms of 1969 were born in Canada and 67 p.c. in the province in which they were married; 85 p.c. of the brides were born in Canada and 73 p.c. in the province in which they were married. There are wide variations in the pattern of intermarriage of foreign-born and native-born persons as between provinces; in the older Atlantic Provinces and in Quebec and Saskatchewan, there is a greater tendency than in the other provinces to marry native Canadians and in these areas both partners are often born in the same province. In Ontario, Alberta and British Columbia there are higher proportions than elsewhere of intermarriage with persons born in other provinces or outside Canada.

\*For international comparisons, see Section 7, pp. 282-283.

**30.—Marriages and Rates per 1,000 Population, by Province, with Percentage Distribution of Bridegrooms and Brides by Nativity, 1951, 1961 and 1966-69**

Province and Year	Total Marriages	Rate per 1,000 Population	Born in Province Where Married		Born in Other Provinces		Born Outside Canada	
			Grooms	Brides	Grooms	Brides	Grooms	Brides
			p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
Newfoundland.....1951	2,517	7.0	85.2	96.7	2.4	1.9	12.4	1.4
.....1961	3,306	7.2	88.0	97.2	3.8	1.6	8.2	1.2
.....1966	3,728	7.6	89.2	96.6	4.2	1.7	6.7	1.7
.....1967	4,021	8.0	90.5	95.4	4.2	2.5	5.3	2.1
.....1968	4,242	8.4	90.7	96.3	4.5	2.2	4.8	1.5
.....1969	4,279	8.3	90.3	96.3	4.5	2.1	5.2	1.6
Prince Edward Island.....1951	583	5.9	82.3	91.1	12.9	6.0	4.8	2.9
.....1961	624	6.0	81.7	89.6	15.4	7.2	2.9	3.2
.....1966	752	6.9	77.3	89.2	18.5	9.0	4.3	1.7
.....1967	802	7.4	76.9	88.5	18.7	9.5	4.4	2.0
.....1968	750	6.8	78.4	87.6	17.7	9.9	3.9	2.5
.....1969	868	7.9	78.6	88.4	17.5	9.7	3.9	2.0
Nova Scotia.....1951	5,094	7.9	78.2	86.7	15.9	9.0	6.0	4.3
.....1961	5,292	7.2	75.2	87.8	18.8	8.8	6.0	3.4
.....1966	5,833	7.7	76.8	86.8	17.3	9.5	5.8	3.7
.....1967	6,189	8.2	76.5	86.5	17.0	9.9	6.5	3.6

**30.—Marriages and Rates per 1,000 Population, by Province, with Percentage Distribution of Bridegrooms and Brides by Nativity, 1951, 1961 and 1966-69—concluded**

Province or Territory and Year		Total Marriages	Rate per 1,000 Population	Born in Province Where Married		Born in Other Provinces		Born Outside Canada	
				Grooms	Brides	Grooms	Brides	Grooms	Brides
		No.		p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
Nova Scotia—concluded	1968	6,284	8.3	77.3	86.1	16.5	9.7	6.2	4.2
	1969	6,568	8.6	76.9	86.4	16.5	9.6	6.5	4.0
New Brunswick.....	1951	4,386	8.5	80.0	86.9	10.1	6.7	9.8	6.4
	1961	4,504	7.5	75.4	86.3	14.9	7.9	9.7	5.8
	1966	5,165	8.4	76.2	85.8	14.6	8.8	9.2	5.4
	1967	5,452	8.8	76.3	85.6	15.0	9.0	8.7	5.5
	1968	5,389	8.6	76.4	86.4	14.9	8.9	8.8	4.8
	1969	5,705	9.1	77.8	86.8	14.4	9.0	7.8	4.2
Quebec.....	1951	35,704	8.8	86.7	89.5	6.1	5.5	7.2	5.0
	1961	35,943	6.8	83.6	87.4	5.7	4.8	10.7	7.8
	1966	44,411	7.7	83.9	87.2	5.7	5.0	10.4	7.8
	1967	46,275	7.9	83.7	87.1	5.7	5.0	10.6	8.0
	1968	46,004	7.8	78.5	86.9	10.2	4.7	11.3	8.4
	1969	47,545	7.9	83.5	87.1	5.0	4.5	11.5	8.4
Ontario.....	1951	45,198	9.8	65.9	72.4	14.6	12.2	19.5	15.4
	1961	44,434	7.1	61.5	67.2	12.9	11.0	25.6	21.8
	1966	54,571	7.8	61.0	65.9	14.2	12.0	24.8	22.0
	1967	58,377	8.2	60.9	65.8	14.3	12.1	24.9	22.1
	1968	62,109	8.5	59.5	65.0	13.7	11.5	26.8	23.5
	1969	67,150	9.0	59.5	64.9	13.5	11.6	27.0	23.5
Manitoba.....	1951	7,366	9.5	67.9	75.1	15.4	13.3	16.8	11.6
	1961	6,512	7.1	66.6	74.5	18.5	14.5	14.8	11.0
	1966	7,312	7.6	67.7	75.6	18.2	13.9	14.1	10.4
	1967	7,942	8.2	68.3	75.7	18.1	14.1	13.6	10.2
	1968	8,291	8.5	68.1	75.6	16.8	12.9	15.1	11.5
	1969	8,864	9.1	66.4	73.9	17.7	13.9	15.8	12.2
Saskatchewan.....	1951	6,805	8.2	78.3	86.4	10.7	6.4	11.1	7.2
	1961	6,149	6.6	79.3	85.8	11.9	8.7	8.8	5.5
	1966	6,987	7.3	77.7	85.3	14.6	9.2	7.7	5.6
	1967	7,579	7.9	77.2	84.1	15.1	9.9	7.7	6.0
	1968	7,747	8.1	77.4	84.6	15.1	9.7	7.5	5.7
	1969	7,668	8.0	77.1	84.5	15.1	10.1	7.8	5.4
Alberta.....	1951	9,305	9.9	56.0	67.4	25.7	19.6	18.3	13.0
	1961	10,474	7.9	54.4	62.3	25.8	21.8	19.8	15.9
	1966	11,879	8.1	56.4	64.1	26.2	22.0	17.3	14.0
	1967	12,903	8.7	56.0	63.4	26.6	22.8	17.4	13.9
	1968	13,640	8.9	55.9	62.4	27.0	23.1	17.1	14.5
	1969	14,846	9.5	54.6	62.0	27.1	23.3	18.2	14.7
British Columbia.....	1951	11,272	9.7	35.5	41.6	43.1	43.0	21.3	15.5
	1961	10,964	6.7	36.4	45.9	35.9	32.4	27.7	21.8
	1966	14,682	7.8	42.0	51.2	34.5	29.0	23.6	19.8
	1967	16,026	8.2	41.8	51.5	33.7	28.6	24.5	19.9
	1968	16,914	8.4	42.2	50.9	32.5	28.0	25.4	21.1
	1969	18,284	8.8	42.6	50.3	32.2	28.7	25.2	21.0
Yukon Territory.....	1961	128	8.8	12.5	24.2	63.3	52.3	24.2	23.4
	1966	94	6.5	16.0	16.0	57.4	69.1	26.6	14.9
	1967	133	8.9	11.3	23.3	65.4	60.2	23.3	16.5
	1968	170	11.3	13.5	28.2	65.9	54.7	20.6	17.1
	1969	169	11.3	10.7	17.8	63.3	61.5	26.0	20.7
Northwest Territories.....	1961	145	6.3	54.5	61.4	35.9	31.7	9.7	6.9
	1966	182	6.3	51.1	62.6	39.0	29.7	9.9	7.7
	1967	180	6.2	47.8	64.4	38.3	29.4	13.9	6.1
	1968	226	7.3	49.6	64.2	39.4	29.2	11.1	6.6
	1969	237	7.4	53.2	62.4	30.0	29.1	16.9	8.4
Canada.....	1951 <sup>1</sup>	128,230	9.2	70.5	76.5	15.1	12.8	14.5	10.6
	1961	128,475	7.0	67.9	74.2	14.3	11.7	17.9	14.1
	1966	155,596	7.8	68.2	74.1	14.8	11.9	17.0	14.0
	1967	165,879	8.1	67.9	73.7	14.9	12.2	17.2	14.2
	1968	171,766	8.3	65.8	73.0	15.9	11.9	18.3	15.2
	1969	182,183	8.7	66.7	72.5	14.5	12.1	18.7	15.3

<sup>1</sup> Excludes the Yukon and Northwest Territories.



**Age and Marital Status of Brides and Bridegrooms.**—Table 31 shows that 89.3 p.c. of the brides and 89.4 p.c. of the grooms in 1969 had never previously married. The proportion of divorced brides remarrying in 1969 rose sharply for the first time to 6.4 p.c. from 4.4 p.c. in the previous year and the proportion of divorced grooms from 4.7 p.c. to 6.9 p.c. This was presumably the result of the increased number of divorces granted under the new federal divorce legislation enacted in 1968 (see p. 277).

In 1969, the median age at marriage—the age above and below which half of the marriages occurred—was 23.5 for bachelors and 21.4 for spinsters. After having remained constant since 1960 at 21.1 and 21.2, the 1969 median age for brides represents a slight trend toward later marriage.

**31.—Brides and Bridegrooms, by Age and Marital Status, 1969**

Age Group	BRIDES							
	Numbers				Percentages			
	Spinsters	Widows	Divorced	Total	Spinsters	Widows	Divorced	Total
12-14 years.....	80	—	—	80	—	—	—	—
15-19 ".....	48,527	14	51	48,592	29.8	0.2	0.4	26.7
20-24 ".....	88,817	187	1,224	90,228	54.6	2.4	10.5	49.5
25-29 ".....	16,743	385	2,610	19,738	10.3	4.9	22.4	10.8
30-34 ".....	4,025	410	2,086	6,521	2.5	5.2	17.9	3.6
35-39 ".....	1,745	516	1,624	3,885	1.1	6.6	14.0	2.1
40-44 ".....	988	721	1,424	3,143	0.6	9.2	12.2	1.7
45-49 ".....	727	1,157	1,199	3,083	0.4	14.7	10.3	1.7
50-54 ".....	431	1,056	741	2,228	0.3	13.4	6.4	1.2
55-59 ".....	273	1,104	418	1,795	0.2	14.0	3.6	1.0
60-64 ".....	189	958	164	1,311	0.1	12.2	1.4	0.7
65 years or over.....	134	1,353	91	1,578	0.1	17.2	0.8	0.9
<b>Totals, Stated Ages...</b>	<b>162,689</b>	<b>7,861</b>	<b>11,632</b>	<b>182,182</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Age not stated.....	1	—	—	1	...	...	...	...
<b>Totals, All Ages.....</b>	<b>162,690</b>	<b>7,861</b>	<b>11,632</b>	<b>182,183</b>	<b>89.3</b>	<b>4.3</b>	<b>6.4</b>	<b>100.0</b>
Average ages.....yrs.	22.7	51.8	36.6	24.9	...	...	...	...
Median ages....."	21.4	52.6	34.6	21.8	...	...	...	...
	BRIDEGROOMS							
	Numbers				Percentages			
	Bachelors	Widowers	Divorced	Total	Bachelors	Widowers	Divorced	Total
12-14 years.....	—	—	—	—	—	—	—	—
15-19 ".....	12,054	—	2	12,056	7.4	—	—	6.6
20-24 ".....	96,410	42	440	96,892	59.2	0.6	3.5	53.2
25-29 ".....	37,039	131	2,054	39,224	22.7	1.9	16.4	21.5
30-34 ".....	9,069	184	2,266	11,519	5.6	2.7	18.1	6.3
35-39 ".....	3,722	294	2,070	6,086	2.3	4.3	16.6	3.3
40-44 ".....	1,988	432	1,677	4,097	1.2	6.3	13.4	2.2
45-49 ".....	1,118	658	1,461	3,237	0.7	9.6	11.7	1.8
50-54 ".....	590	805	991	2,386	0.4	11.8	7.9	1.3
55-59 ".....	370	1,028	761	2,159	0.2	15.1	6.1	1.2
60-64 ".....	250	957	420	1,627	0.2	14.0	3.4	0.9
65 years or over.....	243	2,297	360	2,900	0.1	33.6	2.9	1.6
<b>Totals, Stated Ages...</b>	<b>162,853</b>	<b>6,828</b>	<b>12,502</b>	<b>182,183</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Age not stated.....	—	—	—	—	...	...	...	...
<b>Totals, All Ages.....</b>	<b>162,853</b>	<b>6,828</b>	<b>12,502</b>	<b>182,183</b>	<b>89.4</b>	<b>3.7</b>	<b>6.9</b>	<b>100.0</b>
Average ages.....yrs.	25.0	57.6	40.4	27.3	...	...	...	...
Median ages....."	23.5	59.2	38.6	23.9	...	...	...	...

<sup>1</sup> The ages below and above which half of the marriages occurred.

**Religious Denominations of Brides and Bridegrooms.**—The distribution of brides and bridegrooms by religious denominations is roughly the same as that for the population as a whole. Table 32 shows the relatively strong influence that religion has on marriage. About 64 p.c. of all marriages are between persons of the same religious denomination; in 1969 among those of Jewish faith it was close to 90 p.c.; among Roman Catholics about 80 p.c.; United Church about 50 p.c.; and Eastern Orthodox about 64 p.c. Except for those of the Jewish faith, the proportions of persons of the same faith marrying appears to be declining slightly in recent years.

**32.—Marriages by Religious Denominations of Contracting Parties, 1969**

Denomination of Bridegroom	Denomination of Bride										Total Marriages	P.C. of Grooms
	Angli-can	Bap-tist	East-ern Orth-odox	Jew-ish	Luth-eran	Pres-byter-ian	Roman Cath-olic <sup>1</sup>	United Church	Other Sects	Not Stated		
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	
Anglican.....	9,037	710	112	41	595	1,033	4,543	5,159	1,207	19	22,456	12.3
Baptist.....	799	2,141	19	6	131	215	859	1,121	460	1	5,752	3.2
Eastern Orthodox.....	174	27	1,895	7	95	45	527	273	114	2	3,159	1.7
Jewish.....	60	7	5	1,987	11	16	125	69	68	5	2,353	1.3
Lutheran.....	717	158	76	8	1,742	180	1,216	1,225	415	7	5,744	3.2
Presbyterian.....	1,028	207	32	4	166	1,795	1,132	1,443	280	8	6,095	3.3
Roman Catholic <sup>1</sup> .....	4,203	776	355	61	1,008	1,043	68,691	5,374	2,083	52	83,646	45.9
United Church.....	5,041	1,006	168	33	1,030	1,233	5,482	17,465	1,507	12	32,997	18.1
Other sects.....	1,730	554	88	77	526	388	3,035	2,442	10,766	24	19,630	10.8
Not stated.....	27	8	3	—	7	8	128	24	25	121	351	...
<b>Totals.....</b>	<b>22,816</b>	<b>5,594</b>	<b>2,753</b>	<b>2,224</b>	<b>5,311</b>	<b>5,956</b>	<b>85,738</b>	<b>34,615</b>	<b>16,925</b>	<b>251</b>	<b>182,183</b>	<b>100.0</b>
P.C. of brides...	12.5	3.1	1.5	1.2	2.9	3.3	47.1	19.0	9.3	...	100.0	63.5 <sup>2</sup>

<sup>1</sup> Includes Greek Catholic denomination.

<sup>2</sup> Percentage of marriages between contracting parties of the same religious

### Subsection 2.—Divorces

Before World War I the number of divorces granted in Canada represented less than one per 1,000 of the yearly number of marriages. After that War, however, there was a definite upward trend; the number advanced to 8,213 in 1947 and then declined gradually to a postwar low of 5,270 in 1951. Since that year, the number of final divorce decrees granted rose steadily each year to a record 11,343 in 1968. A new federal divorce law, enacted effective July 2, 1968, extended the alleged grounds for divorce petitions from one (adultery was the only grounds under the old legislation in most provinces) to some 16, summarized as: (1) *Marital Offence*—adultery, sodomy, bestiality, rape, homosexual act, subsequent marriage, physical cruelty, and mental cruelty; and (2) *Marriage Breakdown by Reason of*—imprisonment for an aggregate period of not less than three years, imprisonment for not less than two years on sentence of death or sentence of 10 years or more, addiction to alcohol, addiction to narcotics, whereabouts of spouse unknown, non-consummation, separation for not less than three years, and desertion by petitioner for not less than five years.

Since the divorce 'decree nisi' is usually not made absolute by the divorce court until three months later, the impact of the new law had little effect on the 1968 count of divorces as very few petitions filed under the new legislation would have been heard and the final decree (decree absolute) granted between July 2 and the end of the calendar year.

Although the 1969 total includes a sizable number of decrees relating to petitions filed under the old legislation—for which the decree absolute was granted some time during 1969—the impact of the new legislation is evident; Table 33 shows that 26,079 final decrees were granted during the calendar year. In most provinces, 1969 divorces were two to three times the number granted in any previous year but the largest relative increases were in Newfoundland where the number rose from 15 to 103 and in Quebec where the increase was from 606 to 2,930. Before the enactment of the 1968 legislation, divorces on behalf of residents of Newfoundland and Quebec were granted by the Parliament of Canada.

In 1969, Ontario accounted for 11,843 divorces or more than half of the total, British Columbia accounted for 4,224 or 16 p.c., Alberta for 3,437 or 13 p.c., and Quebec for 2,930 or 11 p.c.

The 1969 divorces represented a rate of 123.8 per 100,000 population, more than twice the 1968 rate of 54.7. Alberta and British Columbia have consistently had the highest rates among the provinces. In 1969 their rates were 220 and 204, respectively, followed by Ontario with 159, Manitoba with 136 and Nova Scotia with 104 per 100,000 population.

### 33.—Dissolutions of Marriage (Divorces), by Province, 1951-69

Year	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Canada
NUMBERS											
Av. 1951-55.....	5	10	212	167	327	2,430	356	231	612	1,461	5,811
“ 1956-60.....	5	4	227	194	403	2,801	315	247	788	1,514	6,498
“ 1961-65.....	5	8	277	199	380	3,342	376	298	1,226	1,592	7,723 <sup>1</sup>
1966.....	11	18	406	155	988	4,101	524	321	1,567	2,124	10,239 <sup>2</sup>
1967.....	11	18	394	292	727	4,350	477	399	1,736	2,734	11,165 <sup>3</sup>
1968.....	15	20	497	143	606	5,036	465	384	1,916	2,220	11,343 <sup>4</sup>
1969.....	103	102	791	366	2,930	11,843	1,331	880	3,437	4,224	26,079 <sup>5</sup>
RATES PER 100,000 POPULATION											
Av. 1951-55.....	1.3	9.8	32.0	31.4	7.6	49.2	44.0	26.9	60.3	116.8	39.1
“ 1956-60.....	1.2	4.0	32.0	33.9	8.2	48.4	35.9	27.6	65.3	99.8	38.2
“ 1961-65.....	1.0	7.8	36.9	32.7	6.9	51.4	39.8	31.8	87.7	93.3	40.8 <sup>1</sup>
1966.....	2.2	16.6	53.7	25.1	17.1	58.9	54.4	33.6	107.1	113.4	51.2 <sup>2</sup>
1967.....	2.2	16.5	52.0	47.1	12.4	60.8	49.5	41.6	116.5	140.4	54.7 <sup>3</sup>
1968.....	3.0	18.2	65.4	22.9	10.2	68.9	47.9	40.0	125.6	110.6	54.7 <sup>4</sup>
1969.....	20.0	92.7	103.7	58.6	49.0	158.9	136.0	91.8	220.2	204.4	123.8 <sup>5</sup>

<sup>1</sup> Includes 17 in Yukon Territory and three in the Northwest Territories. <sup>2</sup> Includes 21 in Yukon Territory and three in the Northwest Territories. <sup>3</sup> Includes 21 in Yukon Territory and six in the Northwest Territories. <sup>4</sup> Includes 30 in Yukon Territory and 11 in the Northwest Territories. <sup>5</sup> Includes 42 in Yukon Territory and 30 in the Northwest Territories.



## Section 6.—Canadian Life Tables

Life tables are measures of life expectancy compiled from the death rates prevailing over a period. They assume that a given cohort of people (usually 100,000) are born simultaneously in a particular year and continue to be subject all their lives to the death rates prevailing in that year, or perhaps to the average death rates for, say, a three-year period centred around that year. The "expected" deaths in the cohort are calculated (in the case of a "complete" life table) for the first year of life, second year of life, etc., and the diminishing cohort is "followed" for 100 or more years until it has been virtually eliminated. Life expectancy at birth is calculated for the entire cohort and, subsequently, remaining life expectancy is calculated for the survivors at one year, two years, etc. It should be realized that the assumptions of such a life table are never fulfilled in practice and that the hypothetical cohorts in life tables do not represent any actual population. Usually, the persons in an actual cohort born in the life-table year will have a higher life expectancy than those in the life-table cohort because, during their lifetimes, public health conditions will presumably constantly improve and standards of medical care will also presumably advance.

The function of the life table is to express in compact form the mortality trends of the period for which it is compiled. In particular, when a series of life tables for a given country can be compared, they show a great deal about the historical changes in the mortality conditions prevailing in that country. Six official series of life tables for Canada and the provinces and regions have been published to date, based on deaths in the three-year period around each of the Censuses of 1931, 1941, 1951, 1956, 1961 and 1966.

The life-table values for 1966 are given for selected years in Table 34. This table shows that, at 1965-67 mortality rates, 2,525 of 100,000 males born would have died in their first year with 97,475 surviving to one year of age, that 156 more would have died in their second year with 97,319 reaching their second birthday, and so on. There would be 252 survivors at 100 years of age. The "Probability of Dying" column shows the ratio between the population at each age and the number of "expected" deaths in the coming year. Finally, as already stated, the "Expectation of Life" column shows the number of remaining years of life that can be expected at each age, given the 1965-67 mortality rates.

Table 34 also shows that the male probabilities of dying were higher than the corresponding female probabilities over the entire period from birth to 90 years. Mortality rates, and consequently the probabilities of dying, were lowest at about age 10 for both sexes. Above this age the male probability rose quite rapidly, reflecting male accident mortality, and the female probability rose more gradually. Mortality for men between ages 20 and 35 was fairly constant but the male probability began to rise steeply at age 40, due mainly to cardiovascular mortality. Female probabilities after this age rose steadily but less rapidly. It may be observed that about 11,700 males would have died by age 50 as compared with 7,100 females, and that about 57,500 males would have survived to age 70 as compared with 74,400 females.

In the 1966 table, Canadian life expectancy at birth had reached a new high point of almost 68.8 years for males and 75.2 years for females—comparable to the expectancies for other countries with highly developed programs of medical and public health care. Because of the still substantial level of infant mortality, the expectations for male and female children one year old were somewhat higher than the corresponding expectancies at birth. Expectation at age 20 was 51.5 years for men and 57.4 years for women and, at age 40, 33.0 years for men and 38.2 for women. By age 65, the remaining expectancies were 13.6 years for men and 16.7 years for women.

Table 35 summarizes the life expectancy figures extracted from the Canadian life tables for 1931, 1941, 1951, 1956, 1961 and 1966. According to these figures, male life expectancy at birth rose steadily from 60.0 years in 1931 to 67.6 years in 1956 and then

## 34.—Canadian Life Table, 1966

Age	Males				Females			
	Number Living at Each Age	Number Dying Between Each Age and the Next	Probability of Dying Before Reaching Next Birthday	Expectation of Life	Number Living at Each Age	Number Dying Between Each Age and the Next	Probability of Dying Before Reaching Next Birthday	Expectation of Life
				yrs.				yrs.
At birth.....	100,000		.02525	68.75	100,000		.02008	75.18
1 year.....	97,475	2,525	.00160	69.53	97,992	2,008	.00133	75.71
2 years.....	97,319	156	.00105	68.64	97,862	130	.00088	74.81
3 ".....	97,217	102	.00091	67.71	97,776	86	.00070	73.88
4 ".....	97,129	88	.00076	66.77	97,708	68	.00063	72.93
5 ".....	97,055	74	.00067	65.82	97,647	61	.00055	71.97
10 ".....	96,787	268	.00046	61.00	97,445	202	.00030	67.12
15 ".....	96,516	271	.00093	56.16	97,291	154	.00041	62.22
20 ".....	95,915	601	.00168	51.50	97,056	235	.00054	57.37
25 ".....	95,060	855	.00170	46.94	96,785	271	.00059	52.52
30 ".....	94,307	753	.00154	42.29	96,474	311	.00076	47.68
35 ".....	93,540	767	.00188	37.62	96,046	428	.00110	42.88
40 ".....	92,508	1,032	.00287	33.01	95,416	630	.00170	38.15
45 ".....	90,893	1,615	.00465	28.55	94,437	979	.00270	33.51
50 ".....	88,299	2,594	.00783	24.31	92,901	1,536	.00424	29.02
55 ".....	84,119	4,180	.01267	20.38	90,568	2,333	.00648	24.70
60 ".....	77,861	6,258	.02001	16.81	87,101	3,467	.01004	20.58
65 ".....	68,984	8,877	.03033	13.63	81,941	5,160	.01578	16.71
70 ".....	57,548	11,436	.04425	10.83	74,373	7,568	.02508	13.14
75 ".....	44,004	13,544	.06651	8.37	63,481	10,892	.04244	9.94
80 ".....	29,145	14,859	.10018	6.36	48,208	15,273	.07318	7.26
85 ".....	15,593	13,552	.14560	4.79	29,887	18,321	.12196	5.16
90 ".....	6,192	9,401	.20493	3.60	13,353	16,534	.19348	3.60
95 ".....	1,641	4,551	.27799	2.71	3,586	9,767	.29246	2.48
100 ".....	252	1,389	.36616	2.04	438	3,148	.42360	1.69

more slowly to 68.8 years in 1966 for a total advance of 8.8 years. Female expectancy at birth rose more quickly than male, and substantially even from 1956 to 1966. The total increase was 13.1 years, from 62.1 years in 1931 to 75.2 years in 1966. The gap between male and female expectancy at birth rose from 2.1 years in 1931 to 6.4 years in 1966.

An examination of the expectancies at one year of age shows that lower levels of infant mortality greatly increased expectancy at birth. Male expectancy at one year of age rose by 4.8 years over the 35-year period and showed virtually no change between 1961 and 1966. Female expectancy at one year, however, rose by exactly 10 years, from 65.7 in 1931 to 75.7 in 1966, and showed a moderate increase since 1961. It may be noted that, in 1931, expectancy at birth was considerably lower than expectancy at one year of age, and that in 1966 the difference was much smaller. Male expectancy at age 20 rose by only

35.—Expectation of Life, 1931, 1941, 1951, 1956, 1961 and 1966

Age	1931		1941		1951		1956		1961		1966	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
	yrs.	yrs.	yrs.	yrs.	yrs.	yrs.	yrs.	yrs.	yrs.	yrs.	yrs.	yrs.
At birth.....	60.00	62.10	62.96	66.30	66.33	70.83	67.61	72.92	68.35	74.17	68.75	75.18
1 year.....	64.69	65.71	66.14	68.73	68.33	72.33	69.04	73.99	69.80	74.08	69.53	75.71
2 years.....	64.46	65.42	65.62	68.16	67.56	71.55	68.21	73.15	69.63	74.11	68.64	74.81
3 years.....	63.84	64.75	64.88	67.38	66.68	70.66	67.31	72.24	67.71	73.18	67.71	73.88
4 ".....	63.11	63.99	64.07	66.56	65.79	69.74	66.38	71.31	66.78	72.23	66.77	72.93
5 ".....	62.30	63.17	63.22	65.69	64.86	68.90	65.45	70.35	65.83	71.27	65.82	71.97
10 ".....	57.06	58.72	59.70	61.08	60.15	64.02	60.47	65.51	61.02	66.41	61.00	67.12
15 ".....	53.41	54.15	54.06	56.36	55.39	59.19	55.86	60.64	56.20	61.51	56.15	62.22
20 ".....	49.05	49.76	49.57	51.76	50.76	54.41	51.19	55.80	51.51	56.65	51.50	57.37
25 ".....	44.83	45.54	45.18	47.26	46.20	49.67	46.61	50.97	46.91	51.80	46.94	52.52
30 ".....	40.55	41.26	40.73	42.81	41.60	44.94	41.98	46.17	43.24	46.98	42.29	47.88
35 ".....	36.23	37.16	36.26	38.37	37.00	40.24	37.31	41.40	37.66	42.18	37.62	43.55
40 ".....	31.98	33.03	31.57	33.99	32.45	35.63	32.71	36.69	33.06	37.45	33.01	38.51
45 ".....	27.79	28.87	27.60	29.67	28.05	31.54	28.28	32.09	29.49	32.82	28.55	33.61
50 ".....	23.72	24.70	23.49	25.46	23.88	26.80	24.04	27.65	24.35	28.33	24.31	29.02
55 ".....	19.88	20.84	19.64	21.42	20.02	22.61	20.12	23.38	20.30	24.01	20.38	24.70
60 ".....	16.09	17.15	16.84	17.62	16.49	18.64	16.54	19.34	16.73	19.90	16.81	20.58
65 ".....	12.68	13.75	12.91	14.08	13.31	14.77	13.36	15.63	13.63	16.07	13.63	16.71
70 ".....	9.86	10.62	10.31	11.03	10.41	11.32	10.51	12.17	10.67	12.58	10.83	13.14
75 ".....	7.37	7.98	7.86	8.19	7.89	8.72	7.98	9.15	8.21	9.48	8.37	9.94
80 ".....	5.01	5.62	5.54	6.03	5.89	6.38	5.89	6.74	6.14	6.90	6.36	7.26
85 ".....	3.07	3.38	3.35	3.67	3.67	4.07	3.67	4.07	3.67	4.07	3.67	4.07
90 ".....	2.37	2.43	2.03	2.13	2.17	2.34	2.07	2.34	2.07	2.34	2.07	2.34
95 ".....	2.14	2.40	2.09	2.26	2.24	2.27	2.18	2.74	2.00	2.32	2.71	2.68
100 ".....	1.53	1.77	1.46	1.64	1.60	1.89	1.52	2.05	1.49	1.56	2.04	1.89



36.—Expectation of Life at Selected Ages, by Province or Region, 1931, 1941, 1951, 1956, 1961 and 1966

Province or Region and Age	1931		1941		1951		1956		1961		1966	
	Male		Male		Male		Male		Male		Male	
	yrs.	yrs.	yrs.	yrs.	yrs.	yrs.	yrs.	yrs.	yrs.	yrs.	yrs.	yrs.
<b>Atlantic Provinces—</b>												
At birth.....	60.20	61.91	61.69	64.63	66.57	70.50	67.91	72.89	68.58	73.92	..	..
1 year.....	64.76	65.44	65.68	67.78	69.08	72.41	69.68	74.23	70.06	75.10	..	..
20 years.....	49.22	49.62	49.36	51.33	51.59	54.52	51.95	56.01	52.17	56.82	..	..
40 ".....	32.73	33.70	32.22	34.19	33.48	35.99	33.58	37.03	33.76	37.70	..	..
65 ".....	13.63	14.59	13.13	14.50	13.90	15.42	13.95	15.91	14.16	16.35	..	..
<b>Newfoundland—</b>												
At birth.....	..	..	..	..	..	..	..	..	..	..	68.94	74.43
1 year.....	..	..	..	..	..	..	..	..	..	..	70.22	75.41
20 years.....	..	..	..	..	..	..	..	..	..	..	52.27	57.08
40 ".....	..	..	..	..	..	..	..	..	..	..	37.83	37.83
65 ".....	..	..	..	..	..	..	..	..	..	..	14.31	16.22
<b>Prince Edward Island—</b>												
At birth.....	..	..	..	..	..	..	..	..	..	..	68.32	75.51
1 year.....	..	..	..	..	..	..	..	..	..	..	69.43	76.22
20 years.....	..	..	..	..	..	..	..	..	..	..	51.56	57.88
40 ".....	..	..	..	..	..	..	..	..	..	..	33.49	38.77
65 ".....	..	..	..	..	..	..	..	..	..	..	14.43	17.57
<b>Nova Scotia—</b>												
At birth.....	..	..	..	..	..	..	..	..	..	..	68.34	74.80
1 year.....	..	..	..	..	..	..	..	..	..	..	69.16	75.43
20 years.....	..	..	..	..	..	..	..	..	..	..	51.32	57.16
40 ".....	..	..	..	..	..	..	..	..	..	..	32.99	37.96
65 ".....	..	..	..	..	..	..	..	..	..	..	13.80	16.75
<b>New Brunswick—</b>												
At birth.....	..	..	..	..	..	..	..	..	..	..	68.53	76.26
1 year.....	..	..	..	..	..	..	..	..	..	..	69.30	75.97
20 years.....	..	..	..	..	..	..	..	..	..	..	51.58	57.79
40 ".....	..	..	..	..	..	..	..	..	..	..	33.35	38.53
65 ".....	..	..	..	..	..	..	..	..	..	..	14.01	17.04
<b>Quebec—</b>												
At birth.....	56.19	57.80	60.18	63.07	64.42	68.58	66.13	71.02	67.28	72.77	67.88	73.91
1 year.....	62.45	62.62	64.45	66.28	67.19	70.71	68.11	72.56	68.71	73.80	68.77	74.57
20 years.....	47.73	47.73	48.38	49.85	49.76	52.92	50.36	54.43	50.82	55.54	50.81	56.25
40 ".....	31.04	31.75	30.94	32.72	31.54	34.36	31.91	35.42	32.29	36.38	32.33	37.05
65 ".....	12.60	13.15	12.44	13.41	12.81	14.17	12.88	14.73	13.16	15.27	13.24	15.79

<b>Ontario—</b>											
At birth.....	61.30	63.92	64.55	68.43	66.87	71.65	67.80	73.57	68.32	74.40	68.71
1 year.....	65.05	66.84	66.74	70.07	68.34	72.91	68.76	74.25	69.14	74.95	75.53
20 years.....	48.79	50.13	49.57	52.40	50.58	54.76	50.81	55.95	51.03	56.53	75.87
40 ".....	31.56	32.90	31.54	34.11	32.03	35.75	32.24	36.74	32.35	37.27	51.14
65 ".....	12.67	13.47	12.63	14.03	13.07	14.92	12.97	15.56	13.05	15.90	38.17
16.72											
<b>Prairie Provinces—</b>											
At birth.....	63.47	65.49	65.43	68.19	68.36	72.28	69.26	74.18	69.79	75.66	..
1 year.....	67.24	68.30	68.02	70.22	69.90	73.43	70.48	75.06	70.96	76.40	..
20 years.....	50.98	51.68	51.28	53.08	52.24	55.53	52.55	56.88	52.90	58.08	..
40 ".....	33.34	34.35	33.32	34.96	33.86	36.63	34.12	37.71	34.37	38.83	..
65 ".....	13.60	14.40	13.35	14.62	13.88	15.51	14.01	16.20	14.22	17.00	..
<b>Manitoba—</b>											
At birth.....	..	..	..	..	..	..	..	..	..	..	76.11
1 year.....	..	..	..	..	..	..	..	..	..	..	69.80
20 years.....	..	..	..	..	..	..	..	..	..	..	76.57
40 ".....	..	..	..	..	..	..	..	..	..	..	52.48
65 ".....	..	..	..	..	..	..	..	..	..	..	39.10
17.42											
<b>Saskatchewan—</b>											
At birth.....	..	..	..	..	..	..	..	..	..	..	76.45
1 year.....	..	..	..	..	..	..	..	..	..	..	71.49
20 years.....	..	..	..	..	..	..	..	..	..	..	53.50
40 ".....	..	..	..	..	..	..	..	..	..	..	58.80
65 ".....	..	..	..	..	..	..	..	..	..	..	39.61
17.89											
<b>Alberta—</b>											
At birth.....	..	..	..	..	..	..	..	..	..	..	76.24
1 year.....	..	..	..	..	..	..	..	..	..	..	76.72
20 years.....	..	..	..	..	..	..	..	..	..	..	52.70
40 ".....	..	..	..	..	..	..	..	..	..	..	58.30
65 ".....	..	..	..	..	..	..	..	..	..	..	39.09
17.34											
<b>British Columbia—</b>											
At birth.....	62.15	65.34	63.65	68.96	66.73	72.37	68.14	73.91	68.94	75.42	69.21
1 year.....	64.55	67.16	65.40	70.17	67.97	73.32	69.19	74.68	69.33	76.00	75.84
20 years.....	48.68	51.18	48.99	53.09	50.41	55.51	51.32	56.52	51.85	57.61	76.33
40 ".....	32.17	34.27	31.70	35.14	32.45	36.72	33.11	37.49	33.56	38.46	58.01
65 ".....	13.36	14.60	12.96	14.83	13.50	15.86	13.72	16.15	13.98	16.94	33.70
38.93											
17.41											

<sup>1</sup> Figures for 1931 and 1941 are exclusive of Newfoundland.

2.5 years over the 1931-66 period and not at all between 1961 and 1966. The corresponding gain for females was 7.6 years. Female expectancy at age 20 in 1966 was nearly six years above male expectancy. Male expectancy at age 40 inched up by about a year over the period to reach 33.0 years in 1966, while the corresponding female expectancy rose over five years from 33.0 years in 1931 to 38.2 years. At age 65, male expectancy rose 0.6 years from 13.0 in 1931 to 13.6 in 1966, while female expectancy advanced three years from 13.7 to 16.7 in the same comparison. The 1966 gap between male and female expectancy was therefore 5.2 years at age 40 and 3.0 years at age 65.

The improvement in life expectancy for children and young adults was largely due to greatly reduced mortality from infectious diseases. Gains in life expectancy for adult males have been held down by, among other factors, (1) continued high cardiovascular mortality, (2) continued high accident mortality, and (3) the rise in lung cancer mortality. Further improvements in life expectancy seem primarily to depend upon (1) additional reductions in infant mortality, (2) lower accident mortality rates, especially among young men, and (3) advances in combating diseases associated with middle and old age, such as cardiovascular-renal conditions, cancer and respiratory conditions. Up to now, these diseases have proved very difficult to control and it is therefore doubtful whether future improvement in life expectancy will be comparable with the advance shown in the past 35 years.

Table 36 shows the life expectancies for five Canadian regions for selected years over the period 1931-61, and the corresponding expectancies for all ten provinces for 1966. The steady widening of the gap between male and female expectancies, so evident at the national level, was common to the expectancies for all five regions. Throughout the 1931-61 period, the Prairie Provinces showed the highest male expectancies and, in the later years, the highest female expectancies as well. The Quebec expectancies were consistently the lowest but they showed the largest gains over the period. Between 1931 and 1961, Quebec life expectancies at birth rose by 11.1 years for males and 15.0 years for females, as compared with the national advances of 8.4 years for males and 12.1 years for females.

In 1966, for the first time, expectancies were calculated for all ten provinces. Male expectancies at birth ranged from 70.5 for Saskatchewan to 67.9 for Quebec, a difference of 2.6 years; Saskatchewan also had the highest expectancies for females at 76.5 years and Quebec the lowest at 73.9 years. In general terms, it may be stated that 1966 expectancies for all four western provinces, at all the selected ages, were moderately above the national average, with the Saskatchewan rates being the highest in all cases. Ontario rates were fairly close to the Canadian average, except those for older men which were slightly below it. Quebec rates were still the lowest in the country, rather less than a year below the national average for males from birth to age 40 and somewhat more than a year below the national average for the corresponding range for females. For the Atlantic Provinces, expectancies at birth and at one year of age clustered fairly closely around the Canadian average, although the Newfoundland female expectancy at birth was a little lower. This statement also applies to expectancies at age 20, with Newfoundland males slightly above the national level. For older males, most Atlantic region expectancies were a little above the national figure and for older females they fluctuated about the average.

## Section 7.—International Comparisons of Vital Statistics

Table 37 gives a summary of Canada's national and provincial vital statistics rates compared with the most recently available data for several other countries. It will be noted that among the countries listed the low crude death rate in Canada is bettered by two countries—Venezuela and Japan—and that some of the provinces have lower rates than most other countries. The Canadian birth rate ranks highest among those listed. However, nine countries reported lower rates of infant mortality, notably Sweden, the Netherlands, Norway and Finland—13.0, 13.2, 13.7 and 13.9, respectively, as compared with Canada's rate of 19.3.



**NOTE.**—Countries are ranked according to the highest rates for births, marriages and natural increase and according to the lowest for deaths. Sources: United Nations and World Health Organisation publications and reports of certain countries concerned.

Country or Province	Births		Deaths		Infant Mortality		Neonatal Mortality <sup>1</sup>		Maternal Mortality		Marriages		Natural Increase	
	Rate <sup>2</sup>	Rank	Rate <sup>2</sup>	Rank	Rate <sup>3</sup>	Rank	Rate <sup>3</sup>	Rank	Rate <sup>4</sup>	Rank	Rate <sup>2</sup>	Rank	Rate <sup>2</sup>	Rank
Australia.....	20.3	11	8.7	8	17.9	9	13.0	10	1.8	5	9.1	4	11.6	8
Austria.....	16.5	23	13.4	30	25.4	20	18.7	19	3.7 <sup>8</sup>	17	7.4	18	3.1	27
Belgium.....	14.6	27	12.4	29	21.7	16	16.8 <sup>7</sup>	17	1.8 <sup>8</sup>	5	7.5	19	2.2	30
<b>Canada.....</b>	<b>17.6</b>	<b>18</b>	<b>7.3</b>	<b>3</b>	<b>19.3</b>	<b>11</b>	<b>13.9</b>	<b>12</b>	<b>2.1</b>	<b>8</b>	<b>8.7</b>	<b>8</b>	<b>10.3</b>	<b>13</b>
Newfoundland.....	25.3	...	5.8	...	21.4	...	14.4	...	—	...	8.3	...	19.5	...
Prince Edward Island.....	18.3	...	9.2	...	22.4	...	15.9	...	—	...	7.9	...	9.1	...
Nova Scotia.....	17.8	...	8.7	...	19.6	...	13.8	...	0.7	...	8.6	...	9.1	...
New Brunswick.....	18.7	...	7.8	...	18.9	...	12.7	...	2.6	...	7.1	...	10.9	...
Quebec.....	16.0	...	6.7	...	20.3	...	15.0	...	3.5	...	9.3	...	9.3	...
Ontario.....	17.5	...	7.5	...	17.6	...	13.2	...	1.5	...	9.0	...	10.0	...
Manitoba.....	18.2	...	8.2	...	21.8	...	15.0	...	2.8	...	8.1	...	10.0	...
Saskatchewan.....	18.3	...	7.8	...	22.5	...	15.2	...	2.3	...	8.0	...	10.5	...
Alberta.....	19.8	...	6.4	...	19.0	...	13.6	...	0.6	...	9.5	...	13.4	...
British Columbia.....	17.1	...	8.4	...	18.1	...	12.1	...	2.5	...	8.8	...	8.7	...
Yukon Territory.....	30.8	...	6.3	...	39.0	...	23.8	...	—	...	11.3	...	24.5	...
Northwest Territories.....	38.0	...	6.8	...	55.9	...	24.7	...	—	...	7.4	...	31.2	...
Chile.....	26.6 <sup>5</sup>	4	9.0 <sup>6</sup>	11	101.9 <sup>7</sup>	30	37.7 <sup>8</sup>	25	24.2 <sup>9</sup>	27	7.1 <sup>6</sup>	24	17.6 <sup>5</sup>	4
Denmark.....	14.5	28	9.8	17	14.9	5	11.9 <sup>6</sup>	7	2.1 <sup>8</sup>	8	8.5 <sup>6</sup>	10	4.7	26
England and Wales.....	16.3	25	11.9	26	18.0	10	12.0	8	1.9	7	8.1	14	4.4	26
Finland.....	14.5	28	9.8	17	13.9	4	11.3 <sup>6</sup>	5	2.8 <sup>8</sup>	13	8.7	8	4.7	26
France.....	16.7	22	11.3	24	19.7	12	14.3 <sup>6</sup>	13	3.2 <sup>8</sup>	15	7.6	17	5.4	22
Germany, Federal Republic of.....	15.0	26	12.0	27	23.4	18	17.9	18	5.8 <sup>8</sup>	20	7.3	21	3.0	29
India <sup>10</sup> .....	20.8 <sup>9</sup>	6	8.2 <sup>8</sup>	7	72.8 <sup>7</sup>	29	...	...	...	...	...	...	12.6 <sup>5</sup>	7
Ireland.....	21.5	7	11.5	25	20.6	13	14.3	13	3.0	14	6.8	26	10.0	14
Italy.....	17.6	18	10.1	20	30.3	23	21.9 <sup>6</sup>	20	6.8 <sup>8</sup>	21	7.2	22	7.5	20
Japan.....	18.3	15	9.1	17	13.3	6	9.8 <sup>6</sup>	1	7.1 <sup>8</sup>	22	9.4 <sup>6</sup>	3	11.6	8
Mexico.....	43.2	1	6.7	12	93.3	28	26.3	22	15.1 <sup>8</sup>	26	7.1	24	33.1	2
Netherlands.....	19.2	13	8.3	17	16.2	8	10.0	6	2.2 <sup>8</sup>	10	9.1	4	10.9	11
New Zealand.....	22.5	6	8.5	8	16.9	19	11.8 <sup>6</sup>	16	2.4 <sup>8</sup>	11	9.0	6	13.8	6
Northern Ireland.....	21.4	8	10.8	9	24.4	13	15.9	16	1.5	4	7.7	15	7.8	19
Norway.....	17.7	16	9.0	19	13.7 <sup>5</sup>	27	10.1 <sup>5</sup>	3	1.3 <sup>8</sup>	1	7.7	15	7.8	19
Peru.....	31.9 <sup>6</sup>	3	7.6 <sup>8</sup>	4	61.9 <sup>6</sup>	27	...	...	...	...	4.3 <sup>7</sup>	29	24.3 <sup>6</sup>	3
Portugal.....	20.4	10	10.4	21	55.8	25	25.4	23	7.4 <sup>8</sup>	23	8.3	12	10.0	14
Scotland.....	17.4	20	12.3	28	21.1	17	13.5	11	1.4	2	8.3	12	5.1	23
Spain.....	20.2	12	9.2	13	22.1 <sup>11</sup>	17	15.5	11	4.4 <sup>8</sup>	19	7.2	22	11.0	10
Sweden.....	22.2	5	10.4	21	13.0 <sup>5</sup>	9	12.4 <sup>6</sup>	9	3.3 <sup>8</sup>	16	6.0	27	3.1	27
Switzerland.....	16.4	24	9.2	13	15.4	7	12.4 <sup>6</sup>	9	3.3 <sup>8</sup>	16	7.4	19	7.2	21
Switzerland.....	22.8 <sup>7</sup>	5	8.7 <sup>8</sup>	8	29.2 <sup>8</sup>	22	...	...	4.0 <sup>7</sup>	18	9.7 <sup>8</sup>	2	14.1 <sup>7</sup>	5
South Africa (Whites).....	17.0	21	8.1	15	25.7	21	15.4	15	2.7	12	8.0 <sup>6</sup>	6	8.9	17
Union of Soviet Socialist Republics.....	17.7	16	9.5	16	20.7	14	22.0 <sup>8</sup>	21	10.6	6	8.2	18	8.2	18
United States.....	17.7	16	6.7 <sup>5</sup>	16	44.3 <sup>5</sup>	24	30.4 <sup>8</sup>	24	9.4 <sup>8</sup>	24	8.6	28	34.4 <sup>5</sup>	1
Venezuela.....	41.1 <sup>5</sup>	2	7.4	13	61.4 <sup>6</sup>	26	...	...	...	...	3.5	20	9.5	16
Yugoslavia.....	18.7	14	9.2	13	...	...	...	...	...	...	...	...	...	...

<sup>1</sup> Under 23 days unless otherwise stated.

<sup>2</sup> Per 1,000 population.

<sup>3</sup> Per 1,000 live births.

<sup>4</sup> Per 10,000 live births.

<sup>5</sup> 1966.

<sup>6</sup> 1965.

<sup>7</sup> 1966.

<sup>8</sup> 1967.

<sup>9</sup> 1964.

<sup>10</sup> Registration area only.

<sup>11</sup> Excluding children born alive but dead before registration of their birth.

# CHAPTER VI.—HEALTH, WELFARE AND SOCIAL SECURITY\*

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*The interpretation of the symbols used in the tables throughout the Year Book will be found on p. vii of this volume.*

A number of important changes in the area of health and welfare were instituted during the year ended June 1971. Among them was the tabling in the House of Commons of the White Paper, Income Security for Canadians, on Nov. 30, 1970, by the Minister of National Health and Welfare. This document included proposals to replace Family Allowances with a Family Income Security Plan, to amend the Old Age Security and Guaranteed Income Supplement programs, to amend the Canada Assistance Plan, and to hold discussions with

\* Except where otherwise indicated, this Chapter was prepared (September 1971) by the Research and Statistics Directorate of the Department of National Health and Welfare, Ottawa.

the provinces to improve provincial social assistance programs financed through the Canada Assistance Plan. The primary objective of these changes was to shift income security payments in favour of people in greatest need.

The proposals relating to Old Age Security and the Guaranteed Income Supplement were enacted in December 1970. The Old Age Security Pension was raised to \$80 a month, effective Jan. 1, 1971; the Guaranteed Income Supplement was raised from Apr. 1, 1971 to a maximum of \$55 for a single pensioner and to \$95 where both spouses are pensioners. In June 1971, the Minister announced modifications to the proposed Family Income Security Plan and indicated that further changes might be expected before legislation was introduced.

During the year, the Minister of National Health and Welfare stated at a meeting of federal and provincial Ministers of Health that exploratory discussions would be undertaken with provincial governments with a view to revising the existing cost-sharing arrangements in the field of health care. The objectives of any new approach would be to reduce the rate of escalation of costs of hospital and medical services, and to give the provinces greater flexibility in determining their priorities in health programs.

During 1970, Quebec and Prince Edward Island joined the federal-provincial Medical Care Insurance Program. New Brunswick followed on Jan. 1, 1971, and the Northwest Territories on Apr. 1, 1971.

Efforts were under way to implement recommendations of the 1969 task force reports on the Cost of Health Services in Canada. In April 1971, a National Conference on Assistance to the Physician discussed ways and means of assisting physicians to supply health care more effectively and efficiently.

The Department began a National Survey of Nutrition in September 1970, aimed at providing information on incidence of nutritional diseases and disorders, and on levels of ingestion of nutrients, food additives, non-nutritive substances, and pesticide residues. Initial surveys were made in every province.

A Family Planning Program was announced in September 1970, to be implemented in co-operation with the provinces, professional agencies, and other interested bodies. The Minister expressed the hope that voluntary use of family planning services would reduce infant mortality, child neglect, abandonment, desertion, welfare dependency, and child abuse.

In January 1971, a comprehensive national program against drug abuse was announced in Parliament by the Minister. It will involve research on the non-medical use of drugs, expansion of services for analysing drugs, a national information program, and new methods of handling drug-created problems. Another announcement by the Minister in May 1971 concerned extension of the Department's Drug Quality Assurance Program, designed to support other measures aimed at reducing the cost of drugs to the public. The new monitoring procedures will cover analysis and inspection of manufacturing facilities, assessment of efficacy, and publication of results.

A Bill to ban all advertising and promotion of cigarette products was introduced in Parliament on June 10, 1971. The proposed Cigarette Products Act covers the major recommendations of the 1969 report of the Standing Committee on Health, Welfare and Social Affairs. It would prohibit Canadian manufacturers from promoting the sale of cigarettes on television, radio and in print, or by means of premiums or coupons.

## PART I.—HEALTH

Provincial governments in Canada have constitutional authority to carry out most health services and many preventive and regulatory health activities are delegated by them to the local health services. On its part, the Federal Government exercises jurisdiction over special health areas and functions of a national or international character. In addition, there are numerous non-governmental health agencies, organized at national, provincial and local levels, that are active in different health fields.



## Section 1.—Federal Health Activities

The chief federal health agency is the Department of National Health and Welfare, although important treatment services are administered by the Departments of Veterans Affairs and National Defence. Other federal agencies have been designated to carry out specialized health functions; for example, Statistics Canada is responsible for the gathering of vital and other health statistics, the Medical Research Council administers a medical research grant program, and the Canada Department of Agriculture has certain responsibilities for health connected with food production.

The Department of National Health and Welfare carries out a range of preventive treatment and regulatory health services, supports provincial health programs and participates in international health measures. Its Medical Services Branch provides comprehensive public health services to Indians and to all residents of the Yukon and Northwest Territories. This Branch also operates quarantine, sick mariners and the civil aviation medicine programs and an occupational health service for federal employees. To prevent hazards to health, the Department's Food and Drug Directorate establishes and maintains national standards for the manufacture and distribution of foods, drugs, cosmetics and medical devices and carries out related research.

Another unit, the Canadian Communicable Disease Centre, serves as the national public health laboratory. Special programs have also been established for radiation protection and emergency health services in which the provinces participate.

In its supportive role, the federal health department assists the provincial public health services, hospital and medical care programs and provides grants for the extension of health training facilities through a number of cost-sharing and health grant programs. It supplies scientific information and technical advice on health questions and engages in intramural research in such areas as health manpower and the costs and delivery of health services. Grants for public health research and innovative services including programs concerning the non-medical use of drugs are made available to provincial health departments, universities and voluntary groups.

### Subsection 1.—Public Medical Care

The expression "medicare" is commonly used in referring to the federal Medical Care Insurance Program. This Program, established under the Medical Care Act, has permitted the Federal Government, since July 1, 1968, to contribute about one half of the national cost of insured services to those provinces operating medical care insurance plans that meet certain minimum criteria. Two provinces—British Columbia and Saskatchewan—became participants in the federal plan at its inception. Other provinces joined as follows: Manitoba, Nova Scotia and Newfoundland on Apr. 1, 1969; Alberta on July 1, 1969; Ontario on Oct. 1, 1969; Quebec on Nov. 1, 1970; Prince Edward Island on Dec. 1, 1970; New Brunswick on Jan. 1, 1971; and the Northwest Territories on Apr. 1, 1971. Specifically, the Federal Government contributes to any one participating province half of the per capita cost of all insured services furnished under the plans of all participating provinces, multiplied by the number of insured persons in that one province. The minimum criteria that must be met are as follows.

- (1) *Comprehensive coverage* must be provided for all medically required services rendered by a physician or surgeon. There can be no dollar limit or exclusion except on the ground that the service was not medically required. The federal program includes not only those services that have been traditionally covered as benefits to a greater or lesser extent by the health insurance industry, but also preventive and curative services that have been traditionally covered through the public sector in each province; for example, the medical care of patients in mental and tuberculosis hospitals and those services of a preventive nature provided to individuals by physicians in public health agencies.
- (2) The plan must be *universally available* to all eligible residents on equal terms and conditions and cover at least 95 p.c. of the total eligible provincial population. This "uniform terms and conditions" clause is intended to ensure that all residents have access to coverage and to prevent discrimination in premiums on account of previous health, age, non-membership in a group, or other considerations. If a premium system of financing is selected, sub-

sidization in whole or in part for low-income groups is permitted. It has been left to the individual province to determine whether its residents should be insured on a voluntary or compulsory basis. Utilization charges at the time of service are not precluded by the federal legislation if they do not impede, either by their amount or by the manner of their application, reasonable access to necessary medical care, particularly for low-income groups.

- (3) The plan must provide *portability* of benefit coverage when the insured resident who has paid his premiums, if any, is temporarily absent from the province and when moving residence to another participating province.
- (4) The provincial medical care insurance plan must be administered on a *non-profit basis by a public authority* that is accountable to the provincial government for its financial transactions. It is permissible for provinces to assign certain administrative functions to private agencies.

The above criteria leave each province with substantial flexibility in determining the administrative arrangements for the operation of its medical care insurance plan and in choosing the way in which its plan will be financed, e.g., through premiums, sales tax, other provincial revenues, or by a combination of methods.

Provincial programs that provide health-care services (apart from those already insured under the Medical Care Act) for welfare recipients establishing eligibility on the basis of financial need are supported financially by the federal program known as the Canada Assistance Plan. This program (p. 347) provides for federal payment of one half of the cost of personal health-care services, as well as welfare services. The provinces are free to make available a wide range of health care benefits.

### Subsection 2.—Health Resources Program

The Health Resources Program is concerned with the manpower that is necessary to ensure adequate health-care services in Canada. Under the program, the Government of Canada makes capital grants for teaching and research establishments, consults with officials of provincial governments and other agencies, provides expert advice, undertakes studies on manpower, and supports programs that are designed to increase the effectiveness of health-care personnel.

The Northern Health Service in the Eastern Arctic operates through Frobisher Bay General Hospital but basic to the service are the nursing stations in the widely scattered settlements which are staffed by two or three nurses who rely heavily on the skills of Eskimo assistants.



In 1966, Parliament passed the Health Resources Fund Act in anticipation of an increase in the demand for health manpower after the introduction of compulsory medical care insurance. It provided \$500,000,000 to be disbursed over the period from 1966 to 1980 for capital expenditures on medical schools, teaching hospitals, training facilities for nurses and other health-care personnel, and for research establishments other than residential buildings. The Government of Canada pays up to 50 p.c. of the cost of planning, construction, purchase, renovation and basic equipment, but excluding the costs of land and interest. Of the total, \$400,000,000 is available to the provinces in proportion to their population, and \$25,000,000 for projects that are jointly undertaken by the four Atlantic Provinces; the remaining \$75,000,000 had not yet been allocated by September 1971. By Mar. 31, 1971, the Government had approved disbursement of \$216,000,000 of which it had paid out \$143,000,000, about two thirds for training facilities and one third for research establishments.

### **Subsection 3.—National Health Grant Program**

The National Health Grant Program was instituted in 1948 to assist the provinces in extending and improving public health and hospital services. As provincial needs altered, changes were made in the amounts and conditions of individual grants. Table 1 shows the utilization of the General Health Grants and Hospital Construction Grants, changes in their classification since inception, and the 1970-71 grants as follows: Professional Training, Mental Health, Tuberculosis Control, Public Health Research, General Public Health, Cancer Control, Medical Rehabilitation and Crippled Children, and Child and Maternal Health. During the period 1948-71, expenditures under this program amounted to \$922,000,000.

Since the inception of the program, the largest single grant was made in support of hospital construction. This grant was terminated on Mar. 31, 1970, and lump-sum cash payments were made to the provinces and territories in discharge of the full entitlement of each province and territory to the termination date of the grant. During the life of this grant, funds were approved to assist with the construction of space to house more than 130,200 beds and 16,000 bassinets, for more than 24,300 beds for nurses, 971 beds for interns and about 8,315,000 sq. feet of floor area for certain services used by both in-patients and out-patients. The second largest grant, the General Public Health Grant, has assisted the provinces in extending local health services for the prevention of disease and disability, in controlling environmental health hazards, and in developing a great variety of health services. Since 1948 more than 53,700 health personnel have received assistance in taking training in the health disciplines. Other grants are designated for preventive and treatment services in specific areas, such as mental health, tuberculosis and cancer control, maternal and child care, and medical rehabilitation. Projects supported by the Public Health Research Grant relate to the prevention of disease, disability or death; epidemiology; community health and medical care; operational research; environmental health, including sanitation; and the utilization of health manpower.

The Government has indicated its intention of terminating the General Health Grants, except for the Professional Training and Public Health Research Grants, by the end of March 1972. The amounts available to the provinces are being gradually reduced; the first reduction took place in 1969-70 and the second in 1970-71. The final reduction will be made in the 1971-72 fiscal year.

In April 1969, a new National Health Grant was established to stimulate research studies, service demonstrations and training activities of national importance for the improvement of health services. Eligible applicants may be official or voluntary health agencies, universities, or other qualified agencies or individuals. In 1969-70, the amount allocated was \$1,062,000 on the basis of five cents per capita of population; in 1970-71, it was increased to \$2,300,000 on the basis of 10 cents per capita. For 1971-72, the amount available is \$3,264,000 based on 15 cents per capita. Unlike its predecessor, which was a joint federal-provincial program, the National Health Grant provides direct financial support to eligible applicants.



**1.—Amounts Allocated and Amounts and Percentages Expended under the General Health Grants and Hospital Construction Grants, by Grant, for the Period Ended Mar. 31, 1970, and for the Year Ended Mar. 31, 1971.**

Grant	May 14, 1948—Mar. 31, 1970			Year Ended Mar. 31, 1971	
	Amount Allocated <sup>1</sup>	Amount Expended <sup>2</sup>	Percentage Expended	Amount Allocated <sup>1</sup>	Amount Expended <sup>2,3</sup>
	\$	\$		\$	\$
Crippled Children <sup>4</sup> .....	6,207,728	4,431,677	71	—	—
Professional Training.....	25,542,173	25,416,821	99	2,106,100	2,033,443
Hospital Construction <sup>5</sup> .....	333,888,412	324,997,264	97	—	—
Venereal Disease Control <sup>6</sup> .....	5,968,336	5,146,209	86	—	—
Mental Health.....	160,262,364	139,917,176	87	4,101,873	4,218,566
Tuberculosis Control.....	75,210,138	71,528,424	95	911,527	931,526
Public Health Research.....	37,187,528	32,762,131	88	4,844,030	3,588,033
Health Survey <sup>7</sup> .....	645,180	540,960	84	—	—
General Public Health.....	234,785,656	188,772,085	80	7,734,975	8,480,375
Cancer Control.....	69,386,676	51,392,604	74	911,527	635,007
Laboratory and Radiological Services <sup>8</sup> .....	47,404,300	14,450,881	30	—	—
Medical Rehabilitation <sup>9</sup> .....	6,500,000	3,016,750	46	—	—
Medical Rehabilitation and Crippled Children <sup>10</sup> .....	27,246,353	17,966,817	66	1,367,290	971,764
Child and Maternal Health <sup>11</sup> .....	29,253,503	20,046,000	69	911,527	654,043
<b>Totals.....</b>	<b>1,959,488,347</b>	<b>900,385,799</b>	<b>85</b>	<b>22,888,849</b>	<b>21,512,757</b>

<sup>1</sup> As set out in the Orders in Council authorizing the General Health Grants and Hospital Construction Grants for the years cited. Provinces may vary the amounts allocated for individual General Health Grants by transfer of unexpended funds from one grant to another. <sup>2</sup> Total expenditures for each grant for all provinces including Quebec's share, which has been paid through tax rebate under the Established Programs (Interim Arrangements) Act, effective 1965-66. <sup>3</sup> Because of grant transfer of funds between grants, expenditures can exceed amounts allocated. <sup>4</sup> Merged with the Medical Rehabilitation Grant, Apr. 1, 1960. <sup>5</sup> The amounts allocated exclude, whereas the amounts expended for 1969-70 include, re-votes for unclaimed allocations as from Apr. 1, 1953.

<sup>6</sup> Absorbed into the General Public Health Grant, Apr. 1, 1960. <sup>7</sup> Lapsed in 1953 following the completion of provincial health surveys. <sup>8</sup> Introduced in 1953 and absorbed into the General Public Health Grant, Apr. 1, 1960. <sup>9</sup> Introduced in 1953 and merged with the Crippled Children Grant, Apr. 1, 1960. <sup>10</sup> From 1960 only; see footnotes <sup>4</sup> and <sup>5</sup>. <sup>11</sup> Introduced in 1953.

#### Subsection 4.—Hospital Insurance

Provincial hospital insurance programs, operating in all provinces and territories since 1961, cover 99 p.c. of the population of Canada. Under the Hospital Insurance and Diagnostic Services Act of 1957, the Federal Government shares with the provinces the cost of providing specified hospital services to patients insured by these programs. Specifically excluded are tuberculosis hospitals and sanatoria, hospitals or institutions for the mentally ill, and institutions providing custodial care, such as nursing homes and homes for the aged. The methods of administering and financing the program in each province and the provision of services above the stipulated minimum required by the Act are left to the choice of the province.

Insured in-patient services must include accommodation, meals, necessary nursing service, diagnostic procedures, pharmaceuticals, the use of operating rooms, case rooms, anaesthetic facilities, and the use of radiotherapy and physiotherapy if available. Similar out-patient services may be included in provincial plans and authorized for contribution under the Act. All provinces include some out-patient services, and most cover a fairly comprehensive range. Provincial plans are administered by provincial departments of health in some provinces and by separate commissions in others. To finance the plans, the provinces use general revenue, sales taxes, patient charges, and premiums in various combinations.\* The Government of Canada contributes, out of the consolidated revenue fund in respect to each province, the sum of 25 p.c. of the per capita cost of in-patient services in Canada and 25 p.c. of the per capita cost of in-patient services in the province,

\* All provinces use general revenue: Nova Scotia levies a health services tax; Ontario, Manitoba and Saskatchewan impose premiums (legislation changes in Saskatchewan and Ontario abolished premium payments for family heads aged 65 or over effective Jan. 1, 1972, and in Saskatchewan abolished all authorized charges effective Aug. 1, 1971); and Saskatchewan, Alberta, British Columbia and the Northwest Territories impose authorized charges at the time of service.

multiplied by the average number of insured persons in that province. Thus, the total contribution is about 50 p.c. of the sharable cost for all Canada, but the proportion is higher for provinces where the per capita cost is below average and lower for the other provinces. Contributions for insured out-patient services with respect to each province are paid in the same proportion as the contributions to the cost for in-patients.

For 1970, the Federal Government made the following advance payments, totalling \$692,432,405: Newfoundland \$22,167,611, Prince Edward Island \$4,411,557, Nova Scotia \$35,278,498, New Brunswick \$25,672,076, Ontario \$349,671,410, Manitoba \$43,807,162, Saskatchewan \$41,281,057, Alberta \$78,553,302, British Columbia \$89,515,860, Yukon Territory \$661,046, and the Northwest Territories \$1,412,828.\*

Tables 2 and 3 give 1969 data for the reporting hospitals listed in hospital insurance agreements. The 1,255 hospitals listed had a total of 145,544 beds set up at the end of the year, or 6.9 beds per 1,000 population. The rate of patient-days per 1,000 population was 2,024 for Canada and ranged from 1,575 in Newfoundland to 2,507 in Alberta.

## 2.—Number of Beds Set up in Reporting Hospitals Listed in Hospital Insurance Agreements, with Rates per 1,000 Population, by Province, as at Dec. 31, 1969

Province	No. of Hospitals Reporting	Beds		Province or Territory	No. of Hospitals Reporting	Beds	
		Number	Rate <sup>1</sup>			Number	Rate <sup>1</sup>
Newfoundland.....	47	2,940	5.7	Saskatchewan.....	140	7,625	8.0
Prince Edward Island..	9	671	6.1	Alberta.....	153	14,342	9.1
Nova Scotia.....	48	5,184	6.8	British Columbia.....	115	13,437	6.4
New Brunswick.....	40	4,494	7.2	Yukon Territory.....	5	161	10.1
Quebec.....	268	38,717	6.4	Northwest Territories..	29	444	13.5
Ontario.....	299	50,478	6.7				
Manitoba.....	102	7,051	7.2	<b>Canada.....</b>	<b>1,255</b>	<b>145,544</b>	<b>6.9</b>

<sup>1</sup> Per 1,000 population; based on population estimates as at Dec. 31, 1969.

## 3.—Total Patient-Days and Insured Patient-Days in Reporting Hospitals Listed in Hospital Insurance Agreements, with Rates per 1,000 Population, by Province, 1969

Province or Territory	No. of Hospitals Reporting	Total Patient-Days		Patient-Days Paid For by the Insurance Plan of the Reporting Province	
		Number	Rate <sup>1</sup>	Number	Rate <sup>2</sup>
Newfoundland.....	47	809,363	1,575	766,321	1,494
Prince Edward Island..	9	193,083	1,755	185,932	1,706
Nova Scotia.....	48	1,455,438	1,908	1,290,525	1,732
New Brunswick.....	40	1,300,334	2,081	1,196,889	1,937
Quebec.....	261	11,196,040	1,871	10,686,577	1,790
Ontario.....	299	15,353,685	2,060	14,096,353	1,901
Manitoba.....	101	2,015,596	2,059	1,838,032	1,893
Saskatchewan.....	140	2,089,969	2,179	2,009,188	2,104
Alberta.....	153	3,912,923	2,507	3,677,527	2,370
British Columbia.....	115	4,214,807	2,039	3,820,277	1,860
Yukon Territory.....	3	26,202	1,747	19,632	1,309
Northwest Territories..	28	60,896	1,903	38,212	1,233
<b>Canada.....</b>	<b>1,244</b>	<b>42,628,336</b>	<b>2,024</b>	<b>39,625,465</b>	<b>1,892</b>

<sup>1</sup> Per 1,000 population; based on population estimates as at June 1, 1969.

<sup>2</sup> Per 1,000 persons insured under provincial plans.

Table 4 shows the expenditures of reporting budget review hospitals. They exclude capital costs but include expenditures for services not covered by hospital insurance plans.

\*On Jan.1, 1965, contributions to Quebec under the Hospital Insurance and Diagnostic Services Act were discontinued and replaced by arrangements under the Established Programs (Interim Arrangements) Act.

The expenditures increased in 1969 by almost 14 p.c. over the preceding year to \$1,961,024,000, of which salaries accounted for over two thirds.

Provincial per capita expenditures shown in the table are influenced by the percentage of services provided by budget review hospitals (over 90 p.c. nationally but varying provincially) as well as by differences in hospital utilization, particularly in the amount of care provided for chronic patients.

#### 4.—Revenue Fund Expenditures of Budget Review Hospitals, by Type of Account and by Province, 1969

Province or Territory	Salaries and Wages <sup>1</sup>	Medical and Surgical Supplies	Drugs	Food <sup>2</sup>	Other Expenses <sup>3</sup>	Total
AMOUNTS OF EXPENDITURES						
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland.....	23,031	1,320	1,670	2,713	10,142	38,876
Prince Edward Island.....	4,378	220	263	363	1,594	6,818
Nova Scotia.....	41,079	2,020	2,044	2,754	17,639	65,536
New Brunswick.....	35,267	1,927	1,679	2,299	11,380	52,552
Quebec.....	424,210	17,414	19,178	21,195	86,495	568,492
Ontario.....	511,798	21,387	21,926	27,347	157,146	739,604
Manitoba.....	55,689	2,738	3,085	3,335	16,770	81,617
Saskatchewan.....	55,633	2,668	2,920	3,283	18,448	82,952
Alberta.....	102,790	4,030	4,590	7,573	33,122	152,105
British Columbia.....	123,949	5,860	5,466	6,115	29,283	170,673
Yukon Territory.....	138	7	15	19	56	235
Northwest Territories.....	927	35	37	121	444	1,564
<b>Canada<sup>4</sup>.....</b>	<b>1,378,889</b>	<b>59,626</b>	<b>62,873</b>	<b>77,117</b>	<b>382,519</b>	<b>1,961,024</b>
EXPENDITURES PER PATIENT-DAY <sup>4</sup>						
	\$	\$	\$	\$	\$	\$
Newfoundland.....	28.83	1.65	2.09	3.40	12.69	48.66
Prince Edward Island.....	22.68	1.14	1.36	1.88	8.25	35.31
Nova Scotia.....	31.59	1.55	1.57	2.12	13.56	50.39
New Brunswick.....	28.98	1.58	1.38	1.89	9.35	43.18
Quebec.....	43.23	1.77	1.95	2.16	8.81	57.92
Ontario.....	36.33	1.52	1.56	1.94	11.15	52.50
Manitoba.....	30.11	1.48	1.67	1.80	9.07	44.13
Saskatchewan.....	28.29	1.36	1.49	1.67	9.39	42.20
Alberta.....	27.93	1.10	1.25	2.06	9.00	41.34
British Columbia.....	33.13	1.57	1.46	1.63	7.83	45.62
Yukon Territory.....	51.69	2.62	5.61	7.12	20.97	88.01
Northwest Territories.....	27.37	1.03	1.09	3.57	13.10	46.16
<b>Canada.....</b>	<b>35.64</b>	<b>1.54</b>	<b>1.63</b>	<b>1.99</b>	<b>9.89</b>	<b>50.69</b>
EXPENDITURES PER CAPITA <sup>5</sup>						
	\$	\$	\$	\$	\$	\$
Newfoundland.....	44.81	2.57	3.25	5.28	19.73	75.64
Prince Edward Island.....	39.80	2.00	2.39	3.30	14.49	61.98
Nova Scotia.....	53.84	2.65	2.67	3.61	23.12	85.89
New Brunswick.....	56.43	3.08	2.68	3.68	18.21	84.09
Quebec.....	70.89	2.91	3.21	3.54	14.45	94.99
Ontario.....	68.68	2.87	2.94	3.67	21.09	99.25
Manitoba.....	56.88	2.80	3.15	3.41	17.13	83.37
Saskatchewan.....	58.01	2.78	3.05	3.42	19.24	86.49
Alberta.....	65.85	2.58	2.94	4.85	21.22	97.44
British Columbia.....	59.96	2.84	2.64	2.96	14.17	82.57
Yukon Territory.....	9.20	0.47	1.00	1.27	3.73	15.67
Northwest Territories.....	28.97	1.09	1.16	3.78	13.88	48.88
<b>Canada.....</b>	<b>65.47</b>	<b>2.83</b>	<b>2.99</b>	<b>3.66</b>	<b>18.16</b>	<b>93.11</b>

For footnotes, see end of table, p. 294.



#### 4.—Revenue Fund Expenditures of Budget Review Hospitals, by Type of Account and by Province, 1969—concluded

Province or Territory	Salaries and Wages <sup>1</sup>	Medical and Surgical Supplies	Drugs	Food <sup>2</sup>	Other Expenses <sup>3</sup>	Total
	PERCENTAGE DISTRIBUTION					
Newfoundland.....	59.2	3.4	4.3	7.0	26.1	100.0
Prince Edward Island.....	64.2	3.2	3.9	5.3	23.4	100.0
Nova Scotia.....	62.7	3.1	3.1	4.2	26.9	100.0
New Brunswick.....	67.1	3.7	3.2	4.4	21.6	100.0
Quebec.....	74.6	3.1	3.4	3.7	15.2	100.0
Ontario.....	69.2	2.9	3.0	3.7	21.2	100.0
Manitoba.....	68.2	3.4	3.8	4.1	20.5	100.0
Saskatchewan.....	67.1	3.2	3.5	4.0	22.2	100.0
Alberta.....	67.6	2.6	3.0	5.0	21.8	100.0
British Columbia.....	72.6	3.4	3.2	3.6	17.2	100.0
Yukon Territory.....	58.7	3.0	6.4	8.1	23.8	100.0
Northwest Territories.....	59.3	2.2	2.4	7.7	28.4	100.0
<b>Canada.....</b>	<b>70.3</b>	<b>3.1</b>	<b>3.2</b>	<b>3.9</b>	<b>19.5</b>	<b>100.0</b>

<sup>1</sup> Includes payments to medical staff, interns, residents and students, previously classified as "other expense".

<sup>2</sup> Includes purchased food service.

<sup>3</sup> Includes other supplies, electricity, maintenance services, repairs, interest, depreciation, rent, etc.

<sup>4</sup> Excludes newborn.

<sup>5</sup> Based on population estimates as at June 1, 1969.

#### Subsection 5.—Food and Drug Control

The provisions of the Food and Drugs Act, administered by the Food and Drug Directorate of the Department of National Health and Welfare, apply to the manufacture, advertising, packaging and distribution of drugs, cosmetics and medical devices, and to the manufacture, packaging and distribution of foods, anywhere in Canada. Powers are given under this legislation to maintain the safety, purity and quality of food and drug products and to prevent misrepresentation in labelling and advertising. The Act specifically prohibits the advertising of any food, drug, cosmetic or medical device as a preventive or cure for a number of serious diseases. This feature of the Act is thought to be unique to Canada and it has proven valuable in the prevention of fraud.

Standards of safety and purity are developed through laboratory research and maintained by means of a regular and widespread inspection. The inspection of food-manufacturing establishments plays a major role in the production of clean, wholesome foods containing ingredients that meet recognized standards. The Food and Drug Regulations list chemical additives that may be used in foods, the amounts that may be added to each food, and the underlying reason. Information on new additives must be submitted for careful review before they are included in the permitted list. Considerable emphasis is placed upon studies to ensure that the levels of pesticide residues in foods do not constitute a health hazard. The effect of new packaging and processing techniques on the bacteria associated with food spoilage is also of special concern.

The Food and Drug Directorate regulates both the manufacture and distribution of drugs in Canada. The conditions under which drugs are to be manufactured are described in the Manufacturing Facilities and Control Regulations. They relate to facilities, employment of qualified personnel, quality control procedures, maintenance of records, and a suitable system to enable a complete and rapid recall of any batch of drugs from the market. Pharmaceutical plants are regularly visited by inspectors to ensure that the drugs produced are of a suitable quality to be sold in Canada. Control over the distribution of drugs is based on the relative safety of a drug and its potential for abuse. Accordingly, there are different levels of control. Since 1966, every manufacturer and distributor of drugs in Canada has been required to submit to the Directorate information on all the

products he is marketing in Canada. From this and other information, decisions are made regarding the types of control procedure that will be implemented.

A limited number of drugs in specified dosage ranges may be sold through any outlet under the Patent and Proprietary Medicines Act. Registration under this Act allows a manufacturer to sell secret formula preparations and make limited claims for the product. Narcotics and controlled drugs are closely regulated and detailed records kept of all transactions involved in the legitimate use of these products. The illicit market in narcotics and similar products is the responsibility of the Royal Canadian Mounted Police and other law-enforcement agencies. Close co-operation is maintained between these agencies and the Food and Drug Directorate.

When new drugs with unknown properties are to be placed on the market, detailed information is demanded of the manufacturer. This information includes data on adverse side effects, the manufacturing process to be used, the results of the drug in clinical tests, and the formulation of the dosage forms. The data are carefully reviewed by the Directorate to ensure that the drug is safe and that it is effective for the purpose claimed. Even after the drug is marketed, the Directorate maintains a close watch over the side effects encountered in practice. If it proves to be relatively safe and effective it is no longer classed as a new drug, but if it appears that it might be unsafe the manufacturer would be asked to remove it from the market. The Directorate conducts an adverse-drug-reaction reporting program across Canada to recognize and investigate reactions to drugs. The co-operation of the medical, dental, veterinary and pharmaceutical professions is also solicited in advising the Directorate of such reactions in private practice.

#### Subsection 6.—Medical Services

Through its Medical Services Branch, the Department of National Health and Welfare provides or arranges for several types of medical service for persons whose care by custom or legislation is a federal responsibility.

**Indian Health Services.**—Indians, as residents of a province, are entitled to the benefits of medical care and hospital insurance. These insured benefits are supplemented by the Medical Services Branch, which assists Indian bands in arranging for transportation, and in obtaining drugs and prostheses. A comprehensive public health program provides dental care for children, immunization, school health services, health education, prenatal and postnatal clinics, and well-baby clinics. Direct financial assistance is also given to organizations in support of Indian programs directed toward improving the quality of life by means of adult education, family planning, prevention of venereal disease, and the suppression of alcoholism and drug abuse. Since Indians comprise only 1 p.c. of the Canadian population and are distributed widely across the country, specially designed health facilities have been constructed in almost 200 communities where such facilities are otherwise lacking; about 60 are nursing stations, 91 are health centres and 46 are out-patient clinics.

Indians now generally use the same hospital facilities as non-Indians and most of the few Indian hospitals left are either in the process of being phased out or converted to community hospitals admitting any patients who need care. There are now only 10 Indian hospitals in the provinces. An increasing number of native people are being trained and employed in public health and medical care services, with a view to advancing understanding of and increasing health activities in local communities.

**Northern Health Services.**—The Yukon and Northwest Territories now have tax-supported hospital insurance programs and the latter also has a medical care insurance program which the Yukon will have in the near future; most employed persons in the Yukon are now insured under private plans to which both employer and employee contribute. Thus, the northern health services of the Department of National Health and Welfare are mainly related to public health programs. In addition, special arrangements are made

to facilitate inter-station communication and the transportation of patients from isolated communities to medical centres. Several university groups have interests in delineated zones for the provision of medical personnel and students in rotation and these interests are supported by government contracts and medical care insurance. Departmental facilities include four hospitals, six clinics, 34 nursing stations and 17 health stations.

**Quarantine and Regulatory Service.**—Under the Quarantine Act, all vessels, aircraft and other conveyances and their crews and passengers arriving in Canada from foreign countries are inspected by Quarantine Officers of the Medical Services Branch to detect and correct conditions that could lead to the entry into Canada of such diseases as smallpox, cholera, plague, yellow fever, typhus and relapsing fever. Fully organized quarantine stations are located at all major seaports and airports. The Branch is also responsible for enforcing hygienic standards on federal property including ports and terminals, on interprovincial means of transport, and on Canadian ships and aircraft.

**Immigration Medical Services.**—Under the Department of National Health and Welfare Act and the Immigration Act, the Medical Services Branch determines in Canada and other countries the health status of all applicants for immigration to Canada and some non-immigrants and provides treatment for certain classes of persons after arrival in Canada, including immigrants who become ill en route to their destination or while seeking employment.

**Public Service Health.**—The Medical Services Branch is responsible for a comprehensive occupational health program for federal employees throughout the country and abroad. This service includes health counselling, surveillance of the occupational and working environment, pre-employment, periodic and special examinations, first aid and emergency treatment, and a wide range of advisory services and special health programs.

**Civil Aviation Medicine.**—The Department provides an advisory service to the Ministry of Transport concerning the health and safety of all persons involved in Canadian civil aviation. Regional and headquarters aviation medical officers review all medical examinations, participate in aviation safety programs and assist in air accident investigations. Close liaison is maintained with foreign aviation medical authorities, as standards are usually based upon international agreements. The remarkable expansion of Canadian aviation activity during the past decade has almost doubled the medical assessment work and resulted in a greatly increased demand for aeromedical and flight safety training. Closer interdepartmental co-operation and increased utilization of all Canadian aviation medicine resources has been mandatory and presents a continuing challenge.

### Subsection 7.—Health Science Research

Federal Government expenditures for health science research in the year ended Mar. 31, 1971 were estimated at \$55,600,000, compared with \$58,500,000 in 1969-70 and \$44,700,000 in 1967-68. The 1970-71 outlay was almost all accounted for by the Medical Research Council which spent \$34,000,000, and the Department of National Health and Welfare which spent \$20,800,000. It should be noted that certain research expenditures for environmental health and radiation protection, previously reported by that Department, were considered as expenditures of the Department of the Environment in 1970-71, and were not classified under "health".

Federal grants supporting health science research in universities and hospitals have been channelled mainly through the Medical Research Council (see below), although significant outlays are made by other agencies in special fields such as public health, health-care systems, and defence. The Medical Research Council spent \$34,000,000 in 1970-71, of which \$15,572,000 was allocated for annual grants-in-aid, \$7,478,000 for three-year term research projects, \$1,466,000 for equipment grants, \$7,901,000 for research scholarships



and fellowships, and \$1,545,000 for other research promotion. These amounts are in support of dental and pharmaceutical research as well as medical research.

In 1970-71, the Department of National Health and Welfare accounted for a large part of Federal Government intramural expenditures on research and development studies and related scientific activities in health fields; expenditure amounted to \$5,800,000 and the major outlays were in the fields of pharmacology, pharmaceutical chemistry, nutrition, microbiology, pesticides, food additives, clinical laboratory procedures, health services, prosthetics, epidemiology, and physical fitness. In the same year, the Department of Veterans Affairs supported a variety of clinical studies in chronic disease problems including psychiatric research, to the total of \$238,000, and studies in radiation biology and other life sciences important to health were conducted by the National Research Council.

The Department of National Health and Welfare in 1970-71 distributed \$3,600,000 under the Public Health Research Grant for applied and developmental research projects conducted by universities, hospitals, health departments, and other non-profit health organizations, and distributed \$1,950,000 under the National Health Grant. In addition, \$132,000 was given for physiological research under the Fitness and Amateur Sport Grant, \$63,000 for smoking and health research, \$174,000 for food and drug research, and \$300,000 for research into the non-medical use of drugs. The expansion of research facilities continues to be one of the key objectives of the Health Resources Program of the Department. It is estimated that \$9,100,000, about 40 p.c. of the Health Resources Fund expenditures in 1970-71, were used to build research facilities as an integral part of the program to expand the training of health personnel at medical and dental schools and affiliated centres.

Voluntary agencies supporting medical research related to their special interests include the National Cancer Institute, the Canadian Arthritis and Rheumatism Society, the Canadian Cystic Fibrosis Foundation, the Canadian Association for the Mentally Retarded, the Canadian Mental Health Association, the Muscular Dystrophy Association of Canada, and the Multiple Sclerosis Society of Canada. Research is also funded by provincial governments through various councils and foundations as well as through direct research grants. The Interdepartmental Committee on Medical Research, to which the voluntary agencies are invited, provides a forum for the sharing of information and support of medical research.

**The Medical Research Council.\***—The Medical Research Council (MRC) is the main channel through which the Federal Government provides financial support for research in the health sciences initiated and carried out in Canadian schools of medicine, pharmacy and dentistry. It existed in various administrative forms within the framework of the National Research Council since 1938 but in 1969, with the passage of the Government Organization Act, it became a departmental Crown corporation in its own right. It reports to Parliament through the Minister of National Health and Welfare but is completely separate from that Department. The Council itself is comprised of a full-time president appointed by the Governor in Council, a vice-president and 20 members, drawn chiefly from the universities, who serve without remuneration for terms of up to three years. The program is administered by a small full-time secretariat of scientific and administrative personnel.

Under the terms of its legislation, the MRC has authority "to promote, assist and undertake research in the health sciences, with the exception of public health research". The latter, by statute, is the responsibility of the Department of National Health and Welfare. Its program is divided into three main sectors—the Grants Program, Personnel Support Programs, and Research Development.

The Grants Program is by far the largest component of the MRC operation. Applications from investigators on the staff of Canadian universities and affiliated institutions are considered three times a year. The basis for this consideration is peer assessment; each

\* Prepared by the Medical Research Council, Ottawa.

application is reviewed by external referees expert in the field involved and then considered by one of 16 grants committees, each comprised of eight to 10 senior investigators drawn from universities, government and industry. The recommendations of these committees are then forwarded to Council and awards are approved to the extent that funds permit. Most are made on an annual basis but, where a research program of high merit has reached a stable level of expenditure, support in a specified annual amount may be provided for terms of three to five years. The grants are designed to provide for the normal operating costs of approved programs and for items of special research equipment; they may not be used for the remuneration of the investigator to whom the award is made.

The Personnel Support Programs provide opportunities for research training of graduates of high calibre at the postdoctoral level through Fellowship and Centennial Fellowship programs and, more recently, for training at the pre-doctoral level through a program of Studentships. These awards are all prize awards and the number of successful candidates is therefore limited. Many other research trainees, however, receive support through operating grants to the investigators who supervise their training. The MRC Associateship program provides continuing salary support for a limited number of highly qualified independent researchers working in universities and devoting at least 75 p.c. of their time to research and graduate teaching. The MRC Scholarship provides young investigators who have completed their formal research training with an opportunity to demonstrate in a university setting their potential for independent research without the necessity of, at the same time, carrying a heavy undergraduate teaching load; these awards are tenable for up to five years. Provision is also made for the exchange of information among Canadian scientists through the Visiting Professorship Program, and among Canadian scientists and their foreign colleagues by means of the Visiting Scientist Program under which Canadian investigators may spend up to one research year abroad or foreign scientists may spend periods of three to 12 months working in Canadian laboratories.

A significant portion of the MRC's developmental funds is used to assist in the correction of disparity, both regional and disciplinary, in Canada's research effort; universities attempting to build up programs in underdeveloped fields are encouraged to apply for Development Grants which are designed to assist the Deans of health science faculties in the recruitment of new staff by giving assurance of research funds and equipment and, if necessary, of salary support for periods of up to three years. A special Group program has been developed to provide research support to groups of two or more accomplished investigators who wish to engage in collaborative work in what appear to be especially productive areas. Investigators comprising MRC Groups are expected to devote virtually all their efforts to their common research objectives, and receive from the MRC what is essentially full support of their research program. There are now four MRC Groups—the Group in Neurosciences at the University of Montreal, the Group in Transplant Research at the University of Alberta, the Group in Developmental Neurobiology at McMaster University and the Group in Drug Toxicology at the University of Montreal. Under the heading of Research Development, the MRC also provides financial support for scientific symposia and workshops held in Canada, and assists in defraying the operating costs of the Canadian Council on Animal Care.

The MRC has taken the initiative in sponsoring clinical trials carried out on a national collaborative basis; the first is the Therapeutic Trial of Human Growth Hormone in the treatment of certain types of dwarfism and the second is a study of the efficacy of anti-lymphocyte serum in preventing rejection of renal transplants.

In addition to its responsibilities in the direct support of extramural research, the MRC is involved in the integration of health science research with other aspects of the Federal Government's activities in the health field and in the support of university-based research. Close liaison is also maintained with provincial and voluntary agencies in the health field through consultation at the working level and discussion at more formal meetings arranged at intervals.

The MRC welcomes consultations with the universities and with industry in matters relating to the support and development of health science research and, when desirable, is prepared to set up study groups for consideration of specific or general problems in this broad area.

### **Subsection 8.—International Health**

Canada actively assists and co-operates with the World Health Organization (WHO) and the other specialized agencies of the United Nations whose programs have a substantial health component or orientation. Canada's term of office on the WHO Executive Board was terminated at the 24th World Health Assembly held in 1970.

Capital and technical assistance are provided to developing countries through the Colombo Plan and other bilateral aid programs. Health training is provided for a number of persons coming to Canada each year under the various technical co-operation schemes (see pp. 199–208); during 1970, there were 296 trainees in Canada studying in a wide range of health disciplines under the Canadian International Development Agency program but with greatest concentration in undergraduate medicine and in public health. The number of arrivals for such training has progressively diminished since 1966.

Canadian experts in health legislation, health administration, nursing and related areas undertook specific assignments abroad during the year and teachers and specialists in a number of clinical fields were provided in response to requests from developing countries. Capital assistance, primarily through the provision of Cobalt-60 beam therapy units for cancer treatment centres in the Colombo Plan area, was continued. As a result of their visit to Viet-Nam in 1967, the Advisory Team on the Viet-Nam Medical Program recommendations regarding tuberculosis, rehabilitation, immunization, hospital equipment and other programs have been implemented, and the tuberculosis program was again reviewed during a visit by an expert in 1970. Projects for training in public health are under development in Viet-Nam and in Cameroon.

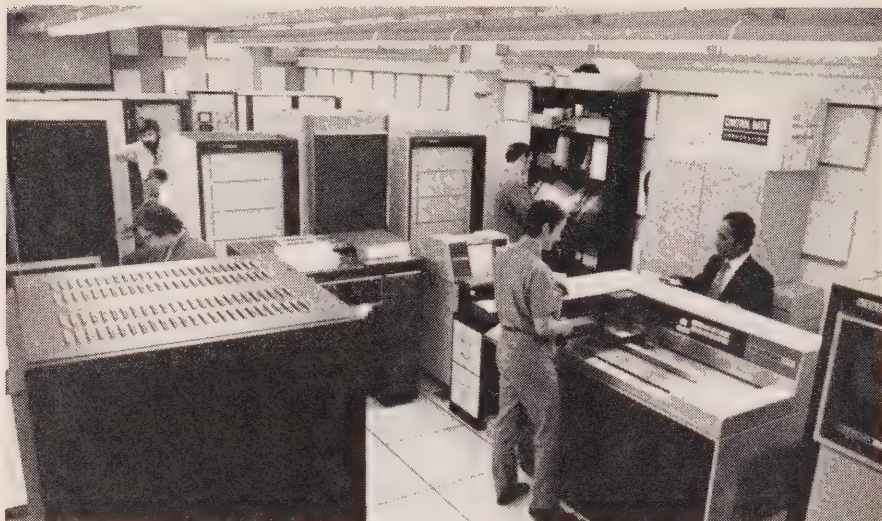
To carry out Canada's obligations under the International Health Regulations, the Department of National Health and Welfare maintains quarantine measures for ships and aircraft entering Canadian ports and provides accommodation and medical care for persons arriving in Canada who require quarantine (see p. 288).

The Department is responsible for the enforcement of regulations governing the handling and shipping of shellfish under the International Shellfish Agreement between Canada and the United States. Other responsibilities include the custody and distribution of biological, vitamin and hormone standards for the WHO and certain duties in connection with the Single Convention on Narcotic Drugs, 1961, as well as Canada's representation on the Narcotic Commission of the United Nations.

### **Subsection 9.—Consultative and Technical Services**

The Department of National Health and Welfare extends consultative and technical services to the provinces over a broad range of health activities. The consultant divisions of the Health Services Branch are concerned with: epidemiology including disease surveillance; communicable disease control as exemplified by the Canadian Communicable Disease Centre that serves as the national reference laboratory for diagnosis of bacterial and viral diseases; child and adult health including mental health, dental health and nutrition; and rehabilitation, emergency health and environmental health problems described elsewhere. The Department also provides technical advisory services to the provinces through its Health Insurance and Resources Branch, Research and Statistics Directorate and Health Information Division.





*The Computer Department for Health Sciences, Faculty of Medicine, University of Manitoba, has a staff of about 20 analyst, programming and operations technicians who use twin computers to assist the many medical research workers of the Manitoba Health Sciences Centre.*

## Section 2.—Provincial and Local Health Services

Provincial governments are primarily responsible for health measures to prevent disease and improve the health standards of the community. These comprise preventive health services, hospital services, treatment services for mental illness, tuberculosis and other diseases, and rehabilitation and care of the chronically ill and disabled. They are usually administered by the provincial health department or other official agency in co-operation with the hospitals and voluntary health organizations, the health professions and the teaching and research institutions.

Although the pattern of services is similar, provincial health organization, financing and administration vary to some degree. Most health functions are exercised by the provincial health departments but in some provinces, certain programs such as hospital insurance, medical care insurance, tuberculosis control, cancer control and alcoholism programs are administered by separate public agencies directly accountable to the minister of health. Voluntary organizations also provide specialized health services, often with some support from tax funds in the form of payment for services or support grants.

The provincial health departments carry out over-all planning and direction of public health programs, administer certain specialized health programs, and assist through technical and financial aid the regional or local health units and city health departments that have been delegated responsibility for the basic public health services. The health district or unit may be administered directly by the provincial health department, by a local health board accountable to it (or jointly with it), while city health departments are administered by municipal or metropolitan boards of health. Several provincial health departments also directly administer health services to northern unorganized territories. The nucleus staff of a local health unit or department usually is composed of a full-time medical officer of health, a number of public health nurses and a public health inspector.

Local official programs to safeguard community health are concerned with environmental sanitation to ensure safe water, milk and other foods; prevention and control of infectious diseases through use of vaccines and prophylactics; improvement of maternal and child health and dental health; registration of vital statistics; and health education and counselling. In addition, the larger city health departments have developed specialized services in such areas as mental health, home care, and rehabilitation of the chronically ill and the handicapped. Some local health services and departments in most provinces have started health screening for chronic conditions and family planning clinics. The city health departments participate to some degree with the provincial authorities in accident prevention and in measures to control air, water and soil pollution.

Provincial health departments support the local health services by grants-in-aid and consultant and research services. Most mental and tuberculosis hospitals and clinics are provincially operated, as are the treatment services for venereal diseases, cancer, alcoholism and other specific diseases, and the public health laboratories that aid both the health agencies and practising physicians in diagnostic and control procedures. The provincial agencies are primarily responsible for the collection and analysis of vital statistics and the study of the epidemiological and related social and economic conditions that affect health. They also give leadership in such fields as occupational health, nutrition, health education and pollution problems in collaboration with national health agencies. In order to maintain and improve health services, the provincial health departments recruit and train professional and technical personnel for the health fields and support public health research.

### Subsection 1.—Public Health Services

**Environmental Health.**—Environment is the sum of all social, biological, physical and chemical factors that make up man's surroundings, and deterioration and modification of the quality of that environment has emphasized the need for assessing the health implications and for developing and stimulating the use of methods to control or eliminate harmful factors.

*New laboratory facilities in the Renal Division of the Clinical Investigation Unit of Winnipeg General Hospital, used in the investigation of patients with high blood pressure. The Unit has 16 laboratory areas involved in research and patient care.*



As technological advances continue, there is an ever-increasing injection of man-made products into the air, water and soil environment, usually as waste or byproducts and often at low concentrations, and many of these pollutants are known to affect health. The relationship between deleterious pollutants and their effects on health depends on such factors as their concentration and the duration of exposure. Of particular importance are the possibility of some or total recovery between periods of exposure, the variability in susceptibility to disease from individual to individual, and effects associated with simultaneous or superimposed exposure to two or more pollutants. The considerable evidence of potential long-term serious consequences of environmental pollution on health justifies the present concern and the need for increased activity.

Programs to protect workers in their occupational environments have been carried on by occupational health officials for a number of years but it is only recently that health officials have been directing their attention to health hazards in the general environment. For example, although there is a long history of activities concerned with the health effects of noise in the industrial and agricultural environment, attention is now being focused also on the health effects of community noise.

The various agencies in Canada concerned about environmental health are in process of developing and implementing programs to assess and determine the health effects and to assess and control air and water pollution, radiation, industrial toxicants, and other factors of the general, occupational and home environments known to be, or suspected of being, deleterious to human health. The complexity of their task requires the work of specialists in a variety of disciplines falling within the broad spectrum of physical, life and engineering sciences and the co-operative efforts of governments and other agencies. Individual tasks include field surveys and interpretation of air and water pollution, research into health effects and their causes from all kinds of toxicants, development of guides and standards for pollutants such as chemicals and other hazards in both the working and general environment, and the specifying of health and safety standards for radiation-emitting devices.

The Federal Government discharges its responsibilities in environmental health through the Environmental Health Directorate of the Department of National Health and Welfare by providing regulatory authorities with the most authoritative assessments of the effect of environmental factors on human health and carrying out its statutory activities in the related fields of radiation protection and occupational hygiene.

Seven of the 10 provinces have agencies in their Health Departments to deal with occupational and environmental health problems. As with the Federal Government, there is close liaison between the health officials and officials responsible for assessment and control of the environment. Co-ordination of the many activities within provinces and between the provinces and the Federal Government is usually provided by advisory boards and committees.

**Occupational Health.**—Services designed to prevent accidents and occupational diseases and to maintain the health of employees are the common concern of provincial health departments, labour departments, workmen's compensation boards and industrial management. Provincial agencies regulate working conditions and offer consultant and education services to industry. All provinces have legislation (Factory Acts, Shop Acts, Mines Acts, Workmen's Compensation Acts) setting standards for health safety and accident prevention on the job. Most provinces maintain environmental health laboratories that study industrial health problems such as the effects of noise and air conditions on workers.



**Communicable Disease Control.**—The larger provincial health departments have separate divisions of communicable disease control headed by full-time epidemiologists whereas in the smaller provinces this function is combined with one or more community health services. Local health authorities organize public immunization clinics against diphtheria, tetanus, poliomyelitis, whooping cough, smallpox and measles. They also engage in case-finding and diagnostic services in co-operation with public health laboratories and private physicians. Special services for tuberculosis and venereal diseases are noted on p. 305.

**Health Education.**—Most provincial health departments have a division or unit of health education directed by a full-time professional "health educator" to promote public knowledge of health needs and measures. This division or unit provides education materials to other divisions of the health department, to local health authorities, to voluntary associations, and to individuals. Many educational activities are directed to accident prevention and to reducing habits harmful to health, such as cigarette smoking and the excessive use of alcohol and drugs. All health workers carry out health education as part of their normal activities.

**Public Health Laboratories.**—All provinces maintain a central public health laboratory and most have branch laboratories to assist local health agencies and the medical profession in the protection of community health and the control of infectious diseases. Public health bacteriology (testing of milk, water and food), diagnostic bacteriology and pathology are the principal functions of the laboratory service, with medical testing for physicians and hospitals steadily increasing in volume.

**Maternal and Child Health.**—Public health nurses employed by the local health services carry out preventive health services to mothers and children through clinics, home and hospital visits and school health services. All provincial health departments have established maternal and child health consultant services that co-operate with the public health nursing services. The maternal and child health services also undertake studies in maternal and child care, including hospital care, and assist in the training of nursing personnel.

**Nutrition.**—Provincial health departments and some city health departments employ consultants in nutrition to extend technical guidance and education to health and welfare agencies, nursing homes and other care institutions and hospitals. They provide diet counselling to selected patient groups, such as diabetics, and conduct nutritional surveys and other research.

**Dental Health.**—Provincial dental public health programs have been largely preventive but increasing emphasis is now being given to dental care. Dental clinics conducted by local health services are usually restricted to pre-school and younger school-age groups. A number of provinces send dental teams to remote areas and subsidize resident dentists to practise in areas lacking such services; the four western provinces have dental care schemes of varying coverage for welfare recipients. Other dental health programs are directed to the training of dentists and dental hygienists, the conduct of dental surveys and the extension of water fluoridation.

### Subsection 2.—Mental Health Services

Mental health services in Canada are organized as part of provincial health services. Each province employs a director of mental health services, usually a psychiatrist, and one or more consultants in psychiatric nursing, clinical psychology, social work, occupational therapy or special education and also one or more psychiatrists specializing in paediatrics, geriatrics, mental retardation, alcoholism and drug addiction, or other related fields. As public health officers, the mental health directors are responsible for the development of programs aimed at prevention of mental disease and for the general promotion of mental health, on their own and in co-operation with welfare, education, manpower,

labour, and justice departments. As psychiatrists, they are responsible for development and supervision of the various health facilities for the treatment of people who suffer from mental or emotional disorders including disorders of character and behaviour, the mentally retarded, people with damage to the nervous system, alcoholics and drug addicts.

Mental health services differ in detail and stage of development from province to province; all are being extended and improved to take advantage of the best methods of treatment and prevention. The traditional pattern of long-term care of the mentally ill and retarded in large isolated mental hospitals and in hospitals for mental defectives is giving way to new patterns of care designed to cure the afflicted or, failing that, to provide living and working environments for them in which they may lead reasonably normal lives.

The mental hospitals now place less emphasis on custodial care and more on intensive psychiatric treatment. They admit voluntary patients who receive much the same care and treatment as they would receive as patients in a general hospital. Many of those who would not profit from intensive psychiatric treatment—the severely retarded and people with severe mental deterioration—are supported under welfare auspices in sheltered workshops, nursing homes or foster homes and continue to receive medical care. In addition to the mental hospitals, some special “psychiatric” hospitals provide intensive psychiatric care over short periods, and psychiatric units and out-patient psychiatric departments are being established in large general hospitals. Local authorities or provincial health departments operate mental health clinics in most large cities and travelling clinics visit suburban and rural areas. Psychiatric hospitals and mental health clinics are establishing more day-care and night-care facilities through which some patients receive part-time hospital care and therapy during the day and go home at night and others go to work during the day and return to hospital in the evening for treatment.

Extending mental health services into the community aims at preventing severe mental and emotional breakdowns and at reducing the number of people requiring treatment in institutions. Under the terms of the federal-provincial medical care legislation, in effect in all provinces and the Northwest Territories in 1971, the services of private psychiatrists should become more widely available. Through early diagnosis and treatment in a mental health clinic or out-patient department of the hospital in the patient's neighbourhood, he may continue to live at home and pursue his normal occupation while receiving treatment.

Special centres have been established for the study and treatment of alcoholism and drug addiction, criminal psychopathy, psychiatric disorders in children, brain injuries and other neurological disorders. Studies recently instigated by the Federal Government in these and related areas include a survey of residential and in-patient services for emotionally disturbed children and the appointment of the Commission of Inquiry into the Non-medical Use of Drugs. The interim report of its findings and recommendations was tabled in the House of Commons on June 19, 1970. In addition, the provinces are amending the pertinent legislation in order to guarantee the rights of the mentally ill, the emotionally disturbed and the intellectually retarded.

The continuing efforts by provincial health departments to provide more and better mental health services reflect growing enlightenment about mental health on the part of the medical profession, the general public and government agencies. Improvement in the care of psychiatric patients has been fostered by activities of voluntary organizations such as the Canadian Mental Health Association and the Canadian Association for the Mentally Retarded; by the professional advice of the Canadian Medical Association and the Canadian Psychiatric Association; by the national health grants and the national welfare grants for new services, professional training, and scientific research; and through the information programs of the Mental Health Division of the Department of National Health and Welfare.

In the field of mental retardation, the Federal Government instituted a Mental Retardation Grant in 1967-68 over a five-year period to support health and welfare demonstration and research projects conducted by voluntary agencies for the mentally retarded. The amount allocated to this grant was \$500,000 annually for the period 1967-68 to 1969-70,

and \$400,000 for 1970-71 and 1971-72. Mental health research funds allocated under the Public Health Research Grants amounted to \$617,000 in 1970-71 and \$525,000 in 1971-72.

### Subsection 3.—Services for Specific Diseases or Disabilities

**Tuberculosis.**—New active cases of tuberculosis in Canada in 1969 numbered 4,438 or 21 per 100,000 population, and in 1970 the total was 3,920 or 18 per 100,000 population. Reactivated cases reached 680 in 1969 and 620 in 1970. Deaths again decreased, to 526 in 1969. Provincial health departments, assisted by voluntary agencies, conduct anti-tuberculosis case-finding programs through community tuberculin-testing and X-ray surveys, with special attention to high-risk groups, hospital admission X-rays, and follow-up of arrested cases. BCG vaccine, estimated to be effective for 80 p.c. of those vaccinated, is used in most provinces to protect certain high-risk groups; in Quebec and Newfoundland, children are routinely immunized. Treatment, including hospital care, drugs and rehabilitation, is free in all provinces. Chemotherapy has shortened hospital stay and facilitated out-patient or domiciliary care. An annual federal grant of \$20,000 is made to the Canadian Tuberculosis and Respiratory Disease Association to improve tuberculosis services across the country.

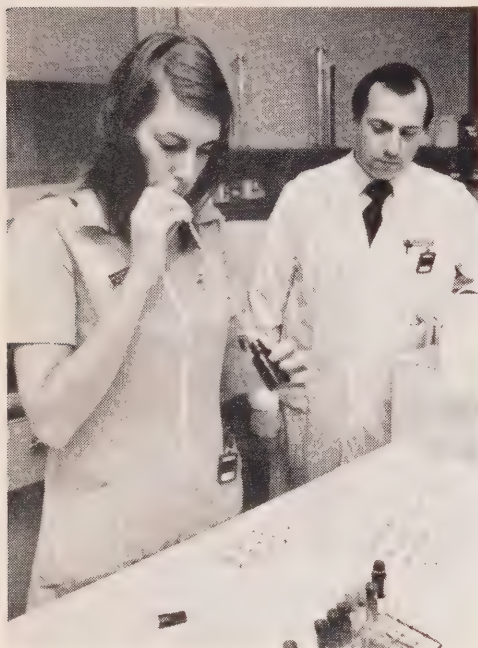
The National Tuberculosis Reference Centre in Ottawa was opened in 1968 to establish uniform standards in testing for resistance to anti-tuberculosis drugs.

**Cancer.**—Cancer in 1969 accounted for 19.2 p.c. of all deaths in Canada, and the standardized cancer death rate increased to 140.7 (156.0 for males and 125.2 for females). It is estimated that in Ontario, for example, one in every three residents may expect to develop some form of cancer. In Canada, cancer ranks second highest as a cause of death and over 91 p.c. of the deaths from cancer occur after 45 years of age. Special provincial agencies for cancer control, usually in the health department or a separate cancer institute, carry out cancer detection and treatment, public education, professional training, and research in co-operation with local public health services, physicians and the voluntary Canadian Cancer Society branches. Although the provisions are not uniform, all cancer programs provide a range of free diagnostic and treatment services to both out-patients and in-patients, financed by the hospital insurance programs or the federal-provincial cancer control grants. Hospital insurance benefits for cancer patients include diagnostic radiology, laboratory tests and radiotherapy. The cancer control programs in Saskatchewan and New Brunswick also pay for medical and surgical services; in most provinces these costs are covered under the public medical care insurance schemes.

**Venereal Diseases.**—Because of under-reporting, public health authorities consider the prevalence of venereal diseases to be much higher than the number of cases recorded. In 1970 there were 2,501 cases of syphilis and 31,544 cases of gonorrhoea reported in Canada. Provincial health departments operate clinics which provide free diagnostic and treatment services in most of the larger cities. In addition, some provinces supply free drugs to physicians treating cases in private practice. The local public health departments are concerned with case-finding, follow-up of contacts, and maintenance of health education programs.

**Alcoholism.**—In all provinces, health departments or other official agencies administer programs for the prevention and control of alcoholism, including public education and related studies. Conservative estimates place the number of Canadians currently requiring these services at 270,000, if a clinical definition of alcoholism is used. Treatment services available are mainly for out-patients but, with the increasing awareness of need, most provinces have expanded facilities for in-patient services. Other facilities operated by official and voluntary agencies include hostels and special farms or prison centres for chronic offenders with drinking problems. In several provinces, alcoholics are treated in detoxication wards rather than in jails. Provincial alcoholism agencies in Ontario, Quebec





*The Nuclear Medicine Department of Vancouver General Hospital, in collaboration with University of British Columbia investigators, has introduced a new test for thyroid function. It is a radioactive test-tube test that can be done quickly and inexpensively and has a diagnostic accuracy of 98.8 p.c.*

and Saskatchewan have broadened their programs to include other addictions, and British Columbia supports a separate narcotic addiction foundation. Because addictions are widely prevalent, street clinics, hospitals, mental health services, and other public and voluntary health and social agencies are also involved in their diagnosis and treatment.

**Other Diseases or Disabilities.**—Many services for persons with chronic disabilities, such as heart disease, arthritis, diabetes, visual and auditory impairments and paraplegia have been initiated by voluntary agencies assisted by federal and provincial funds. Today, treatment for specific conditions is available at hospital out-patient clinics and in-patient or day centres, at separate clinics and rehabilitation centres and under home-care programs.

#### **Subsection 4.—Public Medical Care Insurance and Programs**

**Genesis of Provincial Plans.**—Prior to the establishment of government-administered medical insurance in all provinces over the past few years, prepayment arrangements to cover the cost of physicians' services, mainly voluntary as regards enrolment, had developed rapidly in both the public and the private sectors. By the end of 1968, basic medical or surgical coverage, or both, was being provided to about 17,167,000 Canadians, representing 82.0 p.c. of the population. At the end of 1969, when public medical care programs were operating in seven provinces, total insurance coverage for physicians' services was 18,885,000 or 88.8 p.c. of the population; public plans accounted for coverage of 70.8 p.c. of the total population or 15,058,000 persons (8,797,000 more than in the previous year) and private plans for coverage of 18.0 p.c. of the population. By April 1971, almost all of the population—over 21,000,000 persons—was covered under public auspices.

Not all aspects of private insurance for physicians' services were phased out after 1968. In Saskatchewan, two non-profit private plans continued as fiscal intermediaries to transmit claims and payments between physicians and the public insurance administration. In

Ontario, British Columbia and Nova Scotia, certain private insurance agencies continued as non-profit carriers performing administrative functions, such as enrolment, checking eligibility and paying claims, on behalf of or under the supervision of the public insurance authority. In other provinces the tendency was to absorb the administrative apparatus of the private agency into the public authority. Whether integrated or not into the public insurance authority as regards physicians' services insurance, several private plans have continued to offer policies to protect against the costs of prescribed drugs, private-duty nursing care, services of paramedical personnel, and other services not yet covered by the government plans.

**Provincial Public Plans.**—Each of the 11 plans in operation is described briefly in the paragraphs that follow, in chronological order of entry into the national program. Although most doctors are paid on a fee-for-service basis, alternative or additional arrangements include salary, sessional payments, contract service, capitation,<sup>1</sup> and incentive pay. The program descriptions relate to operations, in most provinces, of the principal agency making payments for physicians' services. Such agencies do not represent the total public involvement in medical care since payments may also be made by workmen's compensation boards, by the hospital insurance administrations or, for certain groups excluded from the coverage provided by the provincial agencies, by the federal or other jurisdictions responsible.

*Saskatchewan.*—This program, introduced in July 1962, requires enrolment of the entire eligible population. The premiums are compulsory and amount to \$24 a year for a family and \$12 a year for a single person; they cover only a small portion of the program costs. Welfare recipients are automatically covered and no premium payment is required of them and, as of Aug. 1, 1971, premium-payment requirements for family heads 65 years of age or over were abolished.

The program description here is confined to the operations of the Medical Care Insurance Commission, which is the principal administering agency for the over-all provincial public authority concerned with prepaid medical care. The Commission makes payments to doctors for the bulk of the services provided under the program. A segment of the population obtains its insured services under terms and conditions identical to those observed by the Commission but by way of a separate administering agency known as the Swift Current Health Region. Also, the provincial authority arranges for payment for care in mental and tuberculosis institutions and for cancer control.

In the program of the Commission, medical benefits include home, office and hospital visits, surgery, obstetrics, psychiatric care outside mental hospitals, anaesthesia, laboratory and radiological services, preventive medicine, and certain services provided by dentists. There are no waiting periods for benefits and no exclusions for reasons of age or pre-existing health conditions. Refractions by optometrists are also an insured benefit.

The Commission pays 85 p.c. of the 1968 physicians' fee schedule for most office and home visits.

Physicians may elect to receive payment in three ways. First, the physician may receive directly from the public authority payment of 85 p.c. of the tariff in the 1968 fee schedule of the Medical Association, and accept this payment as payment in full. Secondly, patients and physicians may enrol voluntarily with an "approved health agency" that serves as intermediary with respect to payment between the public authority and the physicians; here also the physician receives 85 p.c. of the tariff. Thirdly, a physician may elect to submit his bill directly to the patient who pays him either before or after seeking reimbursement from the public authority; the physician may bill the patient directly for amounts over and above what the public authority has paid. No physician is compelled to confine himself to one or another of these modes of payment.

*British Columbia.*—The province became a participant under the federal Medical Care Act on July 1, 1968. The plan is governed by a public commission with jurisdiction over a number of "licensed carriers", which are non-profit agencies charged with responsibility

for day-to-day management of the separate components of the program. In addition to physicians' services and a limited range of oral surgery in hospital, the benefits include refractions by optometrists, some orthoptic services, limited physiotherapy, special nursing, chiropractic, and naturopathy services.

Participation in the program is voluntary. Premiums are \$5 a month for single persons, \$10 a month for two-person families, and \$12.50 a month for families of three or more. For eligible residents, the government offers subsidies amounting to 90 p.c. of the premium for persons with no taxable income and 50 p.c. of the premium for persons with taxable income from \$1 to \$1,000. Welfare recipients are automatically covered without payment of premium.

Payment is made at 90 p.c. of the current fee schedule. Physicians either bill patients for services rendered or accept payments directly from a licensed carrier. In the former case the physician has to notify the patient in writing before rendering a service that he is a non-participating physician, and the patient has to agree in writing that he is prepared to pay more than the amount of reimbursement that he may receive from the public authority. In the latter case, the physician may also charge a fee in excess of the tariff, provided the patient has been duly notified, he agrees in writing to the extra charge, and the amount of the extra charge is made known to the commission.

*Newfoundland.*—This province became a participant on Apr. 1, 1969. The plan covers all medically required services by doctors, plus a limited range of oral surgery in hospital. Refractions by optometrists are not a benefit. All eligible residents are covered and there are no premium levies; the provincial portion of total costs for insured services is met from general revenue.

Benefit payments are limited to 90 p.c. of the fee schedule. Physicians must formally select, and use exclusively, one of the modes of payment available. A participating physician must accept 90 p.c. of the fee-schedule amounts as payment in full. A non-participating physician may impose additional charges provided he informs the beneficiary that he is not a participating physician and that he reserves the right to charge in excess of the amount payable by the plan. Traditionally, large numbers of doctors in Newfoundland contracted with the provincial government and with certain voluntary agencies to receive salaries for service in outlying areas; these arrangements are still in force.

*Nova Scotia.*—Nova Scotia became a participant on Apr. 1, 1969. All eligible residents are covered. Registration is required but there are no premiums, the entire amount of the provincial portion of the costs of insured services being obtained from general revenues. Insured services include all medically necessary procedures by practitioners, plus a limited range of oral surgery procedures in hospitals. Refractions by optometrists are not an insured benefit.

Benefit payments by the plan are made at 85 p.c. of the current fee schedule. Physicians must elect either to participate, that is, accept all payments directly from the plan, or not to participate. In either case, physicians may extra-bill but they must obtain written consent from the patient prior to rendering the service, and the amount of the extra charge has to be made known to the commission.

The Nova Scotia plan is administered by a non-profit carrier designated by the public authority as its sole agent with respect to fee-for-service accounts. This agency carries out all functions relating to eligibility checking and the processing and payment of claims, subject to review and audit by the public authority.

*Manitoba.*—Manitoba began participating under the federal Medical Care Act on Apr. 1, 1969. Enrolment is compulsory for all eligible residents but failure to pay the required premiums is not a barrier to receipt of insured services. Premium levies are 55 cents a month for single persons and \$1.10 a month for families. Coverage of welfare recipients is automatic without premium payment. There are no premium subsidies. The insured benefits cover all medically required services provided by medical practitioners and limited dental surgery in hospitals. Also included, with limitations, are the services of chiropractors and refractions by optometrists.



Physicians may elect to participate in the plan and to accept all payments from the public authority, or they may elect to receive payments direct from all their patients. In the former case, the amount received (85 p.c. of the fee schedule) must be accepted as payment in full. A non-participating physician must give a patient "reasonable notice" if he intends to extra-bill.

*Alberta.*—Alberta became a participating province under the federal Medical Care Act on July 1, 1969, with administration by a Health Care Insurance Commission.

In addition to physicians' services and a limited range of oral surgery, which are cost-shared with the Federal Government, the Alberta program includes refractions by optometrists, services and appliances provided by a podiatrist, and a limited range of osteopathic services.

The combined annual premium of \$69 for single persons and \$138 for families covers both medical and hospital insurance. Subsidies reduce the premiums to \$24 for single persons and to \$48 for families with no taxable income in the previous year; to \$36 for single persons whose taxable income does not exceed \$500; and to \$72 for families whose combined taxable income does not exceed \$1,000. Registration and payment of applicable premiums is compulsory. Failure to comply makes householders liable, at time of seeking service, for payment of back premium levies, plus a penalty of 10 p.c. of the unpaid premium. Residents objecting in principle to claiming benefits under the program can elect to remain outside the program (to "opt out") and not be liable for premium payment. For hospital and related care, they are at liberty to obtain private insurance coverage but application of the federal Medical Care Act prevents private carriers from offering insurance for physicians' services.

The plan also offers subscribers the option of purchasing insurance for additional health services (again, with subsidy provisions) from the voluntary Alberta Blue Cross agency. Rates, applicable to non-group enrollees only, are lower than regular non-group coverage offered by this agency but slightly higher than regular group rates. The optional membership offers coverage for hospital differential charges for semi-private and private ward care, ambulance services, drugs, appliances, home nursing care, naturopathic services, clinical psychological services, and dental care needed because of accidental injury. Since July 1, 1970, payments to physicians have been made at 100 p.c. of the 1969 fee schedule.

*Ontario.*—Ontario began participating on Oct. 1, 1969. Enrolment is compulsory for persons in specified employed groups and voluntary for others. The insured benefits currently cover all medically required services of medical practitioners and of oral surgeons in specified hospital settings, refractions by optometrists, and coverage, with limitations, of certain paramedical services offered by chiropractors, osteopaths and podiatrists.

Payments are made at 90 p.c. of the current fee schedule. Physicians may choose various modes of payments but are not required to enter into a formal commitment to confine themselves to any given mode. Regardless of the mode of payment selected, a physician is required to advise the patient of any intention to charge more than is provided under the plan. These arrangements were under legislative review late in 1971, with the intention of requiring physicians to continue their billing to one of the alternative modes. Premiums are \$5.90 a month for single persons, \$11.80 a month for two-person families, and \$14.75 for families of three or more. Coverage is automatic for welfare recipients and no premium payment is required for them. Subsidies for low-income families modify premiums as follows. (1) For those with no taxable income in the previous year—full premium assistance (i.e., 100-p.c. subsidy). (2) For those with some taxable income—\$2.95 a month (i.e., 50-p.c. subsidy) for single persons if taxable income in previous year was \$500 or less; \$5.90 a month (i.e., 50-p.c. subsidy) for two-person families if combined taxable income in previous year was \$1,000 or less; and \$5.90 a month (i.e., 60-p.c. subsidy) for families of three persons or more if combined taxable income in previous year was \$1,300 or less. There are two additional provisions relating to financial aid. Coverage for three months is paid for families qualifying for temporary assistance, and recipients of Old Age

Security pensions are entitled to full subsidy of premiums at permissible income levels higher than the ceilings set under the general subsidy program.

The public authority in Ontario makes use of administering agencies, which can be non-profit agencies or commercial insurance companies handling this component of their activities on a non-profit basis. Agencies can be "designated" or "participating" depending upon the degree of their involvement in enrolment and claims-processing functions. Most of their enrolment is of employee and other groups. Additionally, the Ontario Health Services Insurance Plan itself enrolls members and processes claims and covers the majority of non-group and subsidized beneficiaries.

By late 1971, the activities of many of the private carriers were being phased out and their administrative functions absorbed into the program of the public carrier.

*Quebec.*—This province entered the national program on Nov. 1, 1970. Registration of all eligible residents is compulsory and, as with other plans, the benefits include all medically required physicians' services and also refractions by optometrists and a limited range of dental services. The medical services are provided for the most part by doctors engaged in private fee practice, and they are paid for on the basis of claims submitted. Doctors who participate receive their entire remuneration, directly or indirectly, from the provincial agency—the Quebec Health Insurance Board—in accordance with a negotiated schedule of benefit payments for each service provided, and they cannot extra-bill. They may choose to be paid directly by the Board, or indirectly by the patient, who is reimbursed by the Board. Doctors who choose not to participate must collect all fees (except for emergency care) from the patient, who cannot, as in other provinces, seek reimbursement from the provincial agency but must personally pay the entire amount.

The provincial portion of costs is met in part from general revenues and in part from an income tax surcharge and special employer contributions. The tax is 0.8 p.c. of net income exceeding \$4,000 if married and \$2,000 if single. Maximum annual contribution is \$125 for tax-paying employees who derive at least three quarters of their income from wages or salaries, and \$200 in other cases. Employers contribute 0.8 p.c. of payrolls.

*Prince Edward Island.*—The province began participating on Dec. 1, 1970. Benefits are comparable to benefits in other provinces that restrict services to those specified under the federal Medical Care Act. Registration is required but is not a condition of eligibility. All funds required to meet the provincial share of costs are obtained from general revenue sources. Doctors who elect to collect directly from patients can extra-bill but only up to the amount for the service as listed in the medical association fee-schedule, and only after they have told the patient their intention, obtained the patient's written consent, and notified the provincial agency of the amount. Doctors who elect, alternatively, to bill the provincial agency directly are paid 85 p.c. of the fee-schedule amount. This they must accept as payment in full unless, again, they notify the patient of their intention to extra-bill for the additional 15 p.c. and obtain his written consent.

*New Brunswick.*—The province began participating on Jan. 1, 1971. Registration by family head is required, although it is not an eligibility requirement. Doctors must indicate whether or not they intend to participate in the plan; if they participate they are obliged to accept 87 p.c. of the current fee-schedule amounts as payment in full (except for inclusive obstetrical services provided by a specialist, for which he can bill the patient an extra \$43.50). Doctors who elect to deal directly with particular patients with regard to payment may extra-bill, and in so doing are not limited to 13 p.c. of the fee in the schedule, provided the patient is informed beforehand. The New Brunswick plan, like others, is generally comprehensive, including limited oral surgery in hospital.

*The Northwest Territories.*—The Northwest Territories entered the national program on Apr. 1, 1971. Doctors who elect to submit accounts to the territorial insurance agency must accept as payment in full the amounts set forth in the agency's benefit schedule. Those who choose to collect directly from patients must initially inform the agency and then the patient of their intention. As in the four Atlantic Provinces, refractions by optometrists are not insured benefits.

Because of isolated conditions in this far northern area, some doctors work as salaried employees even though payments made by the insuring authority are on a fee-for-service basis.

**Health Care Programs for Welfare Recipients.**—Provincial programs providing certain medical care and other health care benefits to recipients of welfare allowances were in operation in all provinces prior to the introduction of province-wide medical care insurance. Following the implementation of such plans, provincial welfare recipients became automatically enrolled, without premium payment, with benefits identical to those for the general population. Co-charges, when and where applicable, and extra-billing are usually waived, and there may be coverage for such not-generally insured physicians' services as travelling mileage and telephoned advice. By April 1971, virtually all recipients of allowances were covered for physicians' services under the provincial medical plans. Hospital care insurance programs in every province provide automatic coverage to welfare allowance recipients without payment of premiums or co-charges by them.

The provision of other health-care benefits continues to follow a variety of patterns established under provincial or municipal programs with 50 p.c. of the costs assumed by the Federal Government under the Canada Assistance Plan.

All generally used prescription drugs are included in Newfoundland, New Brunswick, Manitoba, Saskatchewan, Alberta and British Columbia; extensive dental care and optical care are provided in the four westernmost provinces, although certain services may be subject to special authorization, to dollar limits, or both. Ontario has a basic dental-care program for recipients of mothers' and dependent fathers' allowances and their children, and shares the cost of prescribed optical care, prosthetic appliances, drugs and dental care provided at municipal discretion. Such services as home nursing, appliances, physiotherapy, podiatry, chiropractic and emergency transportation may also be paid under some programs.

### Subsection 5.—Services for the Disabled and Chronically Ill

In recent years rehabilitation programs for injured workers, veterans, handicapped children, and other disability groups have been extended to all handicapped persons. Physical medicine and rehabilitation departments have been established in teaching hospitals and most veterans' and children's hospitals. Specialized rehabilitation centres number some 22 in-patient facilities, of which eight are for children and five are operated under workmen's compensation programs. Services for veterans are dealt with at pp. 365-366.

Hospital services available to in-patients and out-patients include physical medicine, physiotherapy, occupational therapy and social services; most of the children's hospitals and the teaching hospitals also supply speech therapy. The rehabilitation centres provide comprehensive medical, psychosocial and vocational services to more severely disabled persons. Provincial and community agencies providing rehabilitation and home care services co-operate in the rehabilitation of disabled persons.

Most large general hospitals operate out-patient clinics for various diseases and disabilities, such as arthritis and rheumatism, diabetes, glaucoma, speech and hearing defects, heart diseases and orthopaedic and neurological conditions. Voluntary agencies concerned with such specific disability groups as arthritics, the blind, the deaf, children suffering from cystic fibrosis, haemophilia or muscular dystrophy, the mentally ill or retarded, or disabled persons generally, are also broadening their rehabilitation services to include counselling, personal aids and appliances, transportation, employment and education, sheltered workshops and services for the homebound. Home-care programs, under either hospital or community sponsorship, have been established in most provinces to provide nursing, homemaker, physiotherapy and other services to the disabled, the chronically ill, the aged, and the convalescent.

Provincial health, welfare and education departments and voluntary agencies are developing specialized services for physically and mentally handicapped children. Most provinces have registries of handicapped children, of varying coverage, and these are being found increasingly useful in the planning and co-ordination of rehabilitation services.



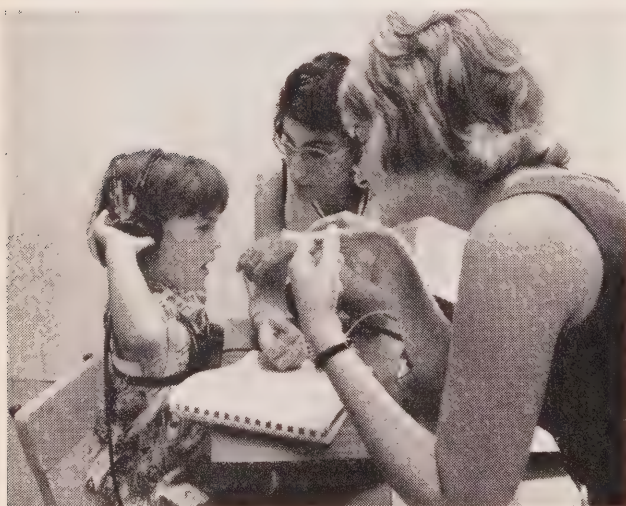
In addition to medical rehabilitation, health departments and the voluntary societies for the handicapped provide family counselling, recreation, transportation and foster-home care; in most provinces travelling clinics extend periodic diagnostic and treatment services to outlying areas. Special schools or classes for various groups of handicapped children are operated by local school boards in the main cities, but most of the 17 residential schools for the deaf and the seven for the blind are operated under provincial auspices.

Regional prosthetic research and training units, supported by National Health Grants, have been set up in rehabilitation centres in Montreal, Toronto and Winnipeg, and in the Bio-Engineering Institute of the University of New Brunswick. Artificial limbs and prosthetic appliances are made available in 12 federally operated prosthetic centres across Canada in accordance with provisions determined by provincial health departments. A federal-provincial program assists in the extraordinary rehabilitation, maintenance and counselling costs on behalf of children with thalidomide-induced defects.

Eleven university schools offer training in physical therapy and/or occupational therapy and four provide training in audiology and speech therapy. In the year ended Mar. 31, 1971, of the \$22,888,849 made available through the General Health Grants to assist the provinces in their rehabilitation programs, \$1,367,290 was specifically allocated to the Medical Rehabilitation and Crippled Children Grant. These grants are used to extend treatment services, to develop medical rehabilitation personnel through grants to the university schools and student bursaries, and for equipment and research.

### Section 3.—Emergency Health Services

In 1951 when the responsibility for civil defence was transferred from the Department of National Defence to the Department of National Health and Welfare, the Civil Defence Health Services group was formed within the Department to make plans for health services in a wartime emergency. In 1959, the Civil Defence Order assigned special powers and duties to several Ministers to prepare, and to assist the provincial and municipal governments to prepare, for war emergencies (this Order, as amended in 1963, was replaced in 1965 by the Civil Emergency Measures Planning Order) and the Canada Emergency Measures Organization was created to co-ordinate civil-defence planning (see Chapter XXV, Sect. 7).



*With the use of electronic equipment, a deaf child can learn to speak and to function effectively in a hearing world. The aim of McGill University's Speech and Hearing School of Human Communication Disorders is to train as many youngsters as possible so that they may enter regular schools and not be segregated from normal children.*

Students and teachers are given an insight into the services provided by the Ontario Crippled Children's Centre in Toronto during open house that marked the Society's 50th anniversary. About 14,500 Ontario physically handicapped children receive assistance through the Society.



The Emergency Health Services Division, established in 1949 by the Minister of National Health and Welfare in his own Department, encourages, with the support of an advisory committee, the provinces to develop their own emergency health services divisions. These are organized under a provincial director who is generally assisted by a health-supplies officer and a nursing consultant. A staff medical officer represents the federal Emergency Health Services in each province.

The provincial emergency health services have four tasks: they ensure effective functioning of health services so that vital health services will be maintained in an emergency or reorganized after a disaster; they encourage and co-ordinate local planning for the development of emergency medical units; they inform and educate the public through courses in first aid to the injured and in home nursing, and train professional health workers, students and volunteers for their functions during an emergency; and they dispose emergency medical units of the national stockpile at strategic locations.

Not all provincial and municipal health departments have developed their emergency planning to such an extent that they could function in a wartime disaster. Some, however, have planned their emergency measures so that they have been able to meet peacetime disasters successfully. Many emergency medical units have been strategically located and the governments generally are agreed upon the objective of emergency health planning.

## Section 4.—Hospital and Other Health Statistics

The longest established health statistics series are those that measure mortality; the incidence of communicable diseases; the operations, facilities, staffing and finances of hospitals; and the morbidity experience of patients in special treatment hospitals. Hospital statistics were extended recently to include in-patient morbidity in all general and allied special hospitals and, even more recently, to show surgical operations performed in such hospitals. Other new series cover incidence of primary sites of cancer, incidence of therapeutic abortions and statistics of health manpower by occupational groups. These are direct statistical series and excerpts from all of them appear in the following subsections, except for mortality statistics which may be found in the Chapter on Vital Statistics, pp. 258-271. In addition, statistics on operations under the federal-provincial hospital in-

surance program are given at pp. 291-294 and those on physicians and their earnings at pp. 336-337. Statistics on the operation of provincial medicare plans may be obtained from provincial sources.

### Subsection 1.—Hospital Statistics\*

Canadian hospitals are categorized, for statistical purposes, according to (1) type of ownership—public, private or federal—and (2) type of service provided—general, allied special (chronic, convalescent, rehabilitation, maternity, communicable disease, children's or orthopaedic), mental or tuberculosis. General hospitals, which account for the largest proportion of beds, are divided into teaching (full and partial teaching) and non-teaching (with and without long-term units) types, which are further divided into varying bed-size groups based on rated bed capacity.

Data pertaining to the number of hospitals in operation (Table 5), their classification and rated bed capacities (Table 6) were available as at Jan. 1, 1971 at the time of preparation of this text but 1969 data were the latest available for all other tables in this subsection except Table 12.

Table 5 shows that the number and bed capacity of hospitals operating in Canada, with the exception of tuberculosis sanatoria, have remained relatively stable in recent years.

### 5.—Number and Bed Capacity of Operating Public, Private and Federal Hospitals, 1966-71

Type	As at Dec. 31			As at Jan. 1	
	1966	1967	1968	1970 <sup>1</sup>	1971
<b>HOSPITALS</b>					
	No.	No.	No.	No.	No.
General.....	948	953	950	930	925
Allied special.....	325	324	319	331	343 <sup>1</sup>
Mental.....	108	108	115	120	121
Tuberculosis.....	40	39	35	32	27
<b>Totals.....</b>	<b>1,421</b>	<b>1,424</b>	<b>1,419</b>	<b>1,413</b>	<b>1,416</b>
<b>BEDS</b>					
	No.	No.	No.	No.	No.
General.....	114,591	117,895	120,213	119,043	121,009
Allied special.....	22,285	23,070	23,273	26,499	27,055 <sup>1</sup>
Mental.....	65,265	65,545	64,252	62,230	60,357
Tuberculosis.....	5,168	4,912	4,258	3,719	3,378
<b>Totals.....</b>	<b>207,309</b>	<b>211,422</b>	<b>211,996</b>	<b>211,491</b>	<b>211,799</b>

<sup>1</sup> Includes children's hospitals, formerly classified as general hospitals.

Table 6 shows the number and bed capacity of public, private and federal hospitals operating in Canada in 1970 and 1971, classified by province and by service type. The proportion of total rated bed capacity lodged in public hospitals rose slightly from 93.3 p.c. in 1970 to 93.7 p.c. in 1971, there being a corresponding decrease in private and federal hospitals. The proportion of rated beds in general and allied special hospitals has been generally increasing in recent years and decreasing in mental and tuberculosis hospitals. In 1971, general hospitals accounted for 57.1 p.c. of the rated beds compared with 56.3 p.c. in 1970 (5.6 beds per 1,000 population in both years). In both years also, Quebec had the

\* Prepared in the Institutions Section of the Health and Welfare Division, Statistics Canada. Detailed information will be found in the following Statistics Canada publications: Hospital Statistics, Vols. I to VII (Catalogue Nos. 83-210 to 83-216); Mental Health Statistics, Vol. III (Catalogue No. 83-205); Tuberculosis Statistics, Vol. II (Catalogue No. 83-207); Annual Salaries of Hospital Nursing Personnel (Catalogue No. 83-218); and List of Canadian Hospitals and Related Institutions and Facilities (Catalogue No. 83-201).



6.—Number and Bed Capacity of Operating Public, Private and Federal Hospitals, by Province and Type, as at Jan. 1, 1970 and 1971

Province or Territory and Category	General			Allied Special <sup>1</sup>			Totals, General and Allied Special		
	Hos-pitals	Beds	Beds per 1,000 Popu-lation <sup>2</sup>	Hos-pitals	Beds	Beds per 1,000 Popu-lation <sup>2</sup>	Hos-pitals	Beds	Beds per 1,000 Popu-lation <sup>2</sup>
1970	No.	No.	No.	No.	No.	No.	No.	No.	No.
<b>Newfoundland—</b>									
Public.....	33	2,484	4.8	14	511	1.0	47	2,995	5.8
Private.....	—	—	—	—	—	—	—	—	—
Federal.....	—	—	—	—	—	—	—	—	—
<b>Prince Edward Island—</b>									
Public.....	8	698	6.3	1	30	0.3	9	728	6.6
Private.....	—	—	—	—	—	—	—	—	—
Federal.....	—	—	—	—	—	—	—	—	—
<b>Nova Scotia—</b>									
Public.....	43	4,217	5.5	4	381	0.5	47	4,598	6.0
Private.....	1	5	—	—	—	—	1	5	—
Federal.....	2	553	0.7	—	—	—	2	553	0.7
<b>New Brunswick—</b>									
Public.....	37	4,103	6.6	2	105	0.2	39	4,208	6.8
Private.....	—	—	—	—	—	—	—	—	—
Federal.....	1	280	0.4	—	—	—	1	280	0.4
<b>Quebec—</b>									
Public.....	135	26,751	4.5	52	8,031	1.3	187	34,782	5.8
Private.....	21	727	0.1	48	2,338	0.4	69	3,065	0.5
Federal.....	1	532	0.1	8	1,096	0.2	9	1,628	0.3
<b>Ontario—</b>									
Public.....	186	40,320	5.3	41	6,193	0.8	227	46,513	6.1
Private.....	10	240	—	54	1,683	0.2	64	1,923	0.2
Federal.....	5	1,922	0.2	4	16	—	9	1,938	0.2
<b>Manitoba—</b>									
Public.....	78	4,931	5.0	5	1,121	1.1	83	6,052	6.2
Private.....	3	40	—	1	50	0.1	4	90	0.1
Federal.....	3	693	0.7	12	43	—	15	736	0.8
<b>Saskatchewan—</b>									
Public.....	132	6,714	7.1	7	568	0.6	139	7,282	7.7
Private.....	—	—	—	—	—	—	—	—	—
Federal.....	2	114	0.1	1	4	—	3	118	0.1
<b>Alberta—</b>									
Public.....	115	10,256	6.5	30	2,983	1.9	145	13,239	8.4
Private.....	—	—	—	—	—	—	—	—	—
Federal.....	5	906	0.6	3	12	—	8	918	0.6
<b>British Columbia—</b>									
Public.....	88	10,469	4.9	20	1,211	0.6	108	11,680	5.5
Private.....	5	43	—	—	—	—	5	43	—
Federal.....	3	1,525	0.7	1	30	—	4	1,555	0.7
<b>Yukon and Northwest Territories—</b>									
Public.....	9	263	5.4	—	—	—	9	263	5.4
Private.....	1	9	0.2	—	—	—	1	9	0.2
Federal.....	3	248	5.1	23	93	1.9	26	341	7.0
<b>Canada, 1970—</b>									
Public.....	864	111,206	5.2	176	21,134	1.0	1,040	132,340	6.2
Private.....	41	1,064	0.1	103	4,071	0.2	144	5,135	0.2
Federal.....	25	6,773	0.3	52	1,294	0.1	77	8,067	0.4

<sup>1</sup> Includes children's hospitals formerly classified as general hospital as at Jan. 1, 1970.<sup>2</sup> Based on estimated population

**6.—Number and Bed Capacity of Operating Public, Private and Federal Hospitals, by Province and Type, as at Jan. 1, 1970 and 1971—continued**

Province or Territory and Category	Mental			Tuberculosis			Totals, All Hospitals		
	Hos- pitals	Beds	Beds per 1,000 Popu- lation <sup>1</sup>	Hos- pitals	Beds	Beds per 1,000 Popu- lation <sup>1</sup>	Hos- pitals	Beds	Beds per 1,000 Popu- lation <sup>1</sup>
1970	No.	No.	No.	No.	No.	No.	No.	No.	No.
<b>Newfoundland—</b>									
Public.....	1	827	1.6	1	223	0.4	49	4,045	7.8
Private.....	—	—	—	—	—	—	—	—	—
Federal.....	—	—	—	—	—	—	—	—	—
<b>Prince Edward Island—</b>									
Public.....	2	391	3.6	1	20	0.2	12	1,139	10.4
Private.....	—	—	—	—	—	—	—	—	—
Federal.....	—	—	—	—	—	—	—	—	—
<b>Nova Scotia—</b>									
Public.....	5	1,840	2.4	2	352	0.5	54	6,790	8.9
Private.....	—	—	—	—	—	—	1	5	—
Federal.....	—	—	—	—	—	—	2	553	0.7
<b>New Brunswick—</b>									
Public.....	3	1,906	3.1	—	—	—	42	6,114	9.8
Private.....	—	—	—	—	—	—	—	—	—
Federal.....	—	—	—	—	—	—	1	280	0.4
<b>Quebec—</b>									
Public.....	34	19,395	3.2	10	1,120	0.2	231	55,297	9.2
Private.....	—	—	—	—	—	—	69	3,065	0.5
Federal.....	—	—	—	—	—	—	9	1,628	0.3
<b>Ontario—</b>									
Public.....	35	19,833	2.6	10	1,001	0.1	272	67,347	8.9
Private.....	11	908	0.1	—	—	—	75	2,831	0.4
Federal.....	—	—	—	—	—	—	9	1,938	0.3
<b>Manitoba—</b>									
Public.....	7	2,684	2.7	2	207	0.2	92	8,943	9.1
Private.....	—	—	—	—	—	—	4	90	0.1
Federal.....	—	—	—	—	—	—	15	736	0.8
<b>Saskatchewan—</b>									
Public.....	4	2,921	3.0	2	238	0.2	145	10,441	11.0
Private.....	—	—	—	—	—	—	—	—	—
Federal.....	—	—	—	—	—	—	3	118	0.1
<b>Alberta—</b>									
Public.....	9	4,933	3.1	2	384	0.2	156	18,556	11.7
Private.....	—	—	—	—	—	—	—	—	—
Federal.....	—	—	—	—	—	—	8	918	0.6
<b>British Columbia—</b>									
Public.....	8	6,529	3.1	2	174	0.1	118	18,383	8.7
Private.....	1	63	—	—	—	—	6	106	0.1
Federal.....	—	—	—	—	—	—	4	1,555	0.7
<b>Yukon and Northwest Territories—</b>									
Public.....	—	—	—	—	—	—	9	263	5.4
Private.....	—	—	—	—	—	—	1	9	0.2
Federal.....	—	—	—	—	—	—	26	341	7.0
<b>Canada, 1970—</b>									
Public.....	108	61,259	2.9	32	3,719	0.2	1,180	197,318	9.3
Private.....	12	971	—	—	—	—	156	6,106	0.3
Federal.....	—	—	—	—	—	—	77	8,067	0.4

<sup>1</sup> Based on estimated population as at Jan. 1, 1970.

**6.—Number and Bed Capacity of Operating Public, Private and Federal Hospitals, by Province and Type, as at Jan. 1, 1970 and 1971—continued**

Province or Territory and Category	General			Allied Special <sup>1</sup>			Totals, General and Allied Special		
	Hos- pitals	Beds	Beds per 1,000 Popu- lation <sup>2</sup>	Hos- pitals	Beds	Beds per 1,000 Popu- lation <sup>2</sup>	Hos- pitals	Beds	Beds per 1,000 Popu- lation <sup>2</sup>
	No.	No.	No.	No.	No.	No.	No.	No.	No.
<b>1971</b>									
<b>Newfoundland—</b>									
Public.....	34	2,519	4.8	13	483	0.9	47	3,002	5.8
Private.....	—	—	—	—	—	—	—	—	—
Federal.....	—	—	—	—	—	—	—	—	—
<b>Prince Edward Island—</b>									
Public.....	8	724	6.6	1	30	0.3	9	754	6.9
Private.....	—	—	—	—	—	—	—	—	—
Federal.....	—	—	—	—	—	—	—	—	—
<b>Nova Scotia—</b>									
Public.....	43	4,422	5.8	4	532	0.7	47	4,954	6.4
Private.....	1	5	—	—	—	—	1	5	—
Federal.....	2	553	0.7	—	—	—	2	553	0.7
<b>New Brunswick—</b>									
Public.....	37	4,092	6.5	2	105	0.2	39	4,197	6.7
Private.....	—	—	—	—	—	—	—	—	—
Federal.....	1	280	0.4	—	—	—	1	280	0.4
<b>Quebec—</b>									
Public.....	133	27,563	4.6	57	8,469	1.4	190	36,032	6.0
Private.....	20	704	0.1	43	2,215	0.4	63	2,919	0.5
Federal.....	1	400	0.1	8	1,096	0.2	9	1,496	0.2
<b>Ontario—</b>									
Public.....	187	40,890	5.3	40	6,162	0.8	227	47,052	6.1
Private.....	8	217	—	55	1,224	0.2	63	1,441	0.2
Federal.....	5	1,821	0.2	8	28	—	13	1,849	0.2
<b>Manitoba—</b>									
Public.....	78	5,060	5.2	5	1,185	1.2	83	6,245	6.4
Private.....	3	40	—	1	50	0.1	4	90	0.1
Federal.....	3	673	0.7	12	43	—	15	716	0.7
<b>Saskatchewan—</b>									
Public.....	133	6,748	7.3	7	569	0.6	140	7,317	7.9
Private.....	—	—	—	—	—	—	—	—	—
Federal.....	2	110	0.1	1	4	—	3	114	0.1
<b>Alberta—</b>									
Public.....	116	10,496	6.5	30	3,185	2.0	146	13,681	8.4
Private.....	—	—	—	—	—	—	—	—	—
Federal.....	5	906	0.6	3	12	—	8	918	0.6
<b>British Columbia—</b>									
Public.....	86	10,725	4.9	22	1,501	0.7	108	12,226	5.6
Private.....	4	37	—	—	—	—	4	37	—
Federal.....	3	1,516	0.7	1	30	—	4	1,546	0.7
<b>Yukon and Northwest Territories—</b>									
Public.....	7	237	4.6	—	—	—	7	237	4.6
Private.....	1	13	0.2	—	—	—	1	13	0.2
Federal.....	4	258	5.0	30	132	2.5	34	390	7.5
<b>Canada, 1971—</b>									
Public.....	862	113,476	5.3	181	22,221	1.0	1,043	135,697	6.3
Private.....	37	1,016	—	99	3,489	0.2	136	4,505	0.2
Federal.....	26	6,517	0.3	63	1,345	0.1	89	7,862	0.4

<sup>1</sup> Includes children's hospitals formerly classified as general hospitals.  
as at Jan. 1, 1971.

<sup>2</sup> Based on estimated population



**6.—Number and Bed Capacity of Operating Public, Private and Federal Hospitals,  
by Province and Type, as at Jan. 1, 1970 and 1971—concluded**

Province or Territory and Category	Mental			Tuberculosis			Totals, All Hospitals		
	Hos- pitals	Beds	Beds per 1,000 Popu- lation <sup>1</sup>	Hos- pitals	Beds	Beds per 1,000 Popu- lation <sup>1</sup>	Hos- pitals	Beds	Beds per 1,000 Popu- lation <sup>1</sup>
	No.	No.	No.	No.	No.	No.	No.	No.	No.
<b>1971</b>									
<b>Newfoundland—</b>									
Public.....	1	827	1.6	1	223	0.4	49	4,052	7.8
Private.....	—	—	—	—	—	—	—	—	—
Federal.....	—	—	—	—	—	—	—	—	—
<b>Prince Edward Island—</b>									
Public.....	2	318	2.9	1	30	0.3	12	1,102	10.0
Private.....	—	—	—	—	—	—	—	—	—
Federal.....	—	—	—	—	—	—	—	—	—
<b>Nova Scotia—</b>									
Public.....	5	1,790	2.3	2	352	0.5	54	7,096	9.2
Private.....	—	—	—	—	—	—	1	5	—
Federal.....	—	—	—	—	—	—	2	553	0.7
<b>New Brunswick—</b>									
Public.....	3	1,590	2.5	—	—	—	42	5,787	9.2
Private.....	—	—	—	—	—	—	—	—	—
Federal.....	—	—	—	—	—	—	1	280	0.4
<b>Quebec—</b>									
Public.....	33	19,856	3.3	6	904	0.1	229	56,792	9.4
Private.....	1	33	—	—	—	—	64	2,952	0.5
Federal.....	—	—	—	—	—	—	9	1,496	0.2
<b>Ontario—</b>									
Public.....	35	18,545	2.4	10	975	0.1	272	66,572	8.6
Private.....	11	904	0.1	—	—	—	74	2,345	0.3
Federal.....	—	—	—	—	—	—	13	1,849	0.2
<b>Manitoba—</b>									
Public.....	8	2,894	2.9	1	143	0.1	92	9,282	9.5
Private.....	—	—	—	—	—	—	4	90	0.1
Federal.....	—	—	—	—	—	—	15	716	0.7
<b>Saskatchewan—</b>									
Public.....	4	2,657	2.9	2	178	0.2	146	10,152	11.0
Private.....	—	—	—	—	—	—	—	—	—
Federal.....	—	—	—	—	—	—	3	114	0.1
<b>Alberta—</b>									
Public.....	9	4,503	2.8	2	400	0.2	157	18,584	11.4
Private.....	—	—	—	—	—	—	—	—	—
Federal.....	—	—	—	—	—	—	8	918	0.6
<b>British Columbia—</b>									
Public.....	8	6,370	2.9	2	173	0.1	118	18,769	8.6
Private.....	1	70	—	—	—	—	5	107	—
Federal.....	—	—	—	—	—	—	4	1,546	0.7
<b>Yukon and Northwest Territories—</b>									
Public.....	—	—	—	—	—	—	7	237	4.6
Private.....	—	—	—	—	—	—	1	13	0.2
Federal.....	—	—	—	—	—	—	34	390	7.5
<b>Canada, 1971—</b>									
Public.....	108	59,350	2.8	27	3,378	0.2	1,178	198,425	9.2
Private.....	13	1,007	—	—	—	—	149	5,512	0.3
Federal.....	—	—	—	—	—	—	89	7,862	0.4

<sup>1</sup> Based on estimated population as at Jan. 1, 1971.

lowest rate of beds per 1,000 (4.7 in 1970 and 4.8 in 1971) and Saskatchewan the highest (7.2 in 1970 and 7.4 in 1971). Mental hospitals had 29.4 p.c. of rated beds in 1970 (2.9 per 1,000 population) and 28.5 p.c. in 1971 (2.8 per 1,000 population); allied special hospitals had 12.5 p.c. of rated beds in 1970 (1.2 per 1,000 population) and 12.8 p.c. in 1971 (1.3 per 1,000 population); and the remaining 1.8 p.c. in 1970 and 1.6 p.c. in 1971 (0.2 per 1,000 population in both years) were located in tuberculosis sanatoria. Rated beds per 1,000 population for all hospitals as a group decreased slightly from 10.0 in 1970 to 9.8 in 1971.

Total adult and child admissions to all Canadian hospitals exceeded 3,457,000 in 1969, an increase of 1.4 p.c. over 1968 and representing 164.1 patient admissions per 1,000 population. Although there appeared to be a decrease in admissions to general hospitals in 1969 to 3,201,831 or 152.0 per 1,000 population from the 1968 figures of 3,238,606 and 156.1, respectively, this was accounted for by the re-classification of children's hospitals from general to allied special status; combining general and allied special hospitals, admissions increased 1.5 p.c. in 1969 over 1968 and the combined rate reached 161.0 per 1,000 population in the later year. The rates of admission per 1,000 population for mental and tuberculosis hospitals decreased from 1968 to 1969 to 2.8 and 0.4, respectively. The average daily population in all Canadian hospitals was 178,559 in 1969, up slightly from 178,132 in 1968. Of the 1969 average, general and allied special hospitals accounted for 65.7 p.c. and mental hospitals for 33.0 p.c. compared with 65.0 p.c. and 33.4 p.c., respectively, in the previous year. Percentage occupancy varied with the type of hospital; in 1969 it was highest in private mental hospitals (95.5 p.c.) and lowest in public sanatoria (64.4 p.c.).

#### 7.—Movement of Patients and Patient-Days in Operating Public, Private and Federal Hospitals, 1968 and 1969

NOTE.—“Patients” refers to adults and children. All ratios are based on population estimates as at June 1 of the year concerned.

Type of Service <sup>1</sup> and Item	1968	1969	Type of Service <sup>1</sup> and Item	1968	1969
PUBLIC HOSPITALS			PUBLIC HOSPITALS— concluded		
<b>General—</b>			<b>Mental—</b>		
Beds set up at Dec. 31...	112,377	111,587	Beds set up at Dec. 31...	61,500	61,542
Admissions.....	3,127,920	3,112,596	Admissions.....	56,324	55,092
Per 1,000 population...	150.8	147.8	Per 1,000 population...	2.7	2.6
Patient-days.....	32,402,654	32,223,515	Patient-days.....	21,523,497	21,164,148
Per 1,000 population...	1,562.0	1,530.0	Per 1,000 population...	1,037.6	1,004.9
Av. daily No. of patients	88,531.8	88,276.8	Av. daily No. of patients	58,807.4	57,984.0
Per 1,000 population...	4.3	4.2	Per 1,000 population...	2.8	2.8
Percentage occupancy <sup>2</sup> ...	79.7	79.4	Percentage occupancy <sup>2</sup> ...	93.2	94.7
<b>Allied Special—</b>			<b>Tuberculosis—</b>		
Beds set up at Dec. 31...	17,947	20,727	Beds set up at Dec. 31...	3,931	3,560
Admissions.....	82,391	172,931	Admissions.....	7,740	7,466
Per 1,000 population...	4.0	8.2	Per 1,000 population...	0.4	0.4
Patient-days.....	5,909,664	6,732,031	Patient-days.....	1,007,332	874,406
Per 1,000 population...	284.9	319.6	Per 1,000 population...	48.6	41.5
Av. daily No. of patients	16,146.6	18,443.9	Av. daily No. of patients	2,752.3	2,395.6
Per 1,000 population...	0.8	0.9	Per 1,000 population...	0.1	0.1
Percentage occupancy <sup>2</sup> ...	90.2	87.3	Percentage occupancy <sup>2</sup> ...	64.2	64.4

For footnotes, see end of table, p. 320.

### 7.—Movement of Patients and Patient-Days in Operating Public, Private and Federal Hospitals, 1968 and 1969—concluded

Type of Service <sup>1</sup> and Item	1968	1969	Type of Service <sup>1</sup> and Item	1968	1969
PRIVATE HOSPITALS			FEDERAL HOSPITALS		
<b>General—<sup>3</sup></b>			<b>General—</b>		
Beds set up at Dec. 31...	1,448	1,081	Beds set up at Dec. 31...	6,785	6,636
Admissions.....	52,673	28,200	Admissions.....	58,013	61,035
Per 1,000 population....	2.5	1.3	Per 1,000 population....	2.8	2.9
Patient-days.....	445,184	299,058	Patient-days.....	1,844,975	1,719,685
Per 1,000 population....	21.5	14.2	Per 1,000 population....	88.9	81.7
Av. daily No. of patients	1,216.3	814.3	Av. daily No. of patients	5,040.9	4,966.7
Per 1,000 population....	0.1	..	Per 1,000 population....	0.2	0.2
Percentage occupancy <sup>2</sup> ...	84.0	78.0	Percentage occupancy <sup>2</sup> ...	73.3	73.3
<b>Allied Special—</b>			<b>Allied Special—</b>		
Beds set up at Dec. 31...	3,918	4,037	Beds set up at Dec. 31...	1,300	1,309
Admissions.....	16,461	13,456	Admissions.....	2,849	2,760
Per 1,000 population....	0.8	0.6	Per 1,000 population....	0.1	0.1
Patient-days.....	1,376,270	1,340,477	Patient-days.....	369,270	368,859
Per 1,000 population....	66.3	63.6	Per 1,000 population....	17.8	17.5
Av. daily No. of patients	3,760.3	3,745.1	Av. daily No. of patients	1,008.9	1,004.4
Per 1,000 population....	0.2	0.2	Per 1,000 population....	--	--
Percentage occupancy <sup>2</sup> ...	94.4	92.5	Percentage occupancy <sup>2</sup> ...	77.3	79.5
<b>Mental—</b>			<b>Tuberculosis—<sup>4</sup></b>		
Beds set up at Dec. 31...	843	948	Beds set up at Dec. 31...	147	—
Admissions.....	3,406	3,533	Admissions.....	1,138	—
Per 1,000 population....	0.2	0.2	Per 1,000 population....	0.1	—
Patient-days.....	283,534	338,600	Patient-days.....	33,971	—
Per 1,000 population....	13.7	16.1	Per 1,000 population....	1.6	—
Av. daily No. of patients	774.7	927.7	Av. daily No. of patients	92.8	—
Per 1,000 population....	--	--	Per 1,000 population....	--	—
Percentage occupancy <sup>2</sup> ...	91.6	95.5	Percentage occupancy <sup>2</sup> ...	61.9	—

<sup>1</sup> Children's hospitals in 1969 are classified in allied special—formerly in general.

<sup>2</sup> Based on rated bed capacity.

<sup>3</sup> Comparisons between 1968 and 1969 are affected by the fact that a large private general hospital was converted to a public general hospital.

<sup>4</sup> The only federal sanatorium in operation in 1968 was converted to a public general hospital in 1969.

The average length of stay of adults and children who were separated from public general hospitals in 1969 was 10.3 days, unchanged from 1968. This average ranged from 7.2 days in non-teaching hospitals with long-term units and 1-24 beds, to 12.5 days in non-teaching hospitals with long-term units and 200 or more beds. Generally, the length of stay increased with bed capacity—one result of the wider availability and utilization of more complex services in larger hospitals. Provincially, Alberta had the lowest average length of stay for general hospitals (8.9 days) and Ontario hospitals the highest (11.0). Hospitals within the allied special group recorded varying average lengths of stay—children's (8.9 days), convalescent/rehabilitation (45.3), chronic/extended care (237.6), and other (15.0). Average length of stay in public hospitals as a whole was 11.7 days.

As Table 9 shows, full-time personnel in all Canadian hospitals (excluding paid medical staff in general and allied special hospitals) numbered 316,825 in 1969. In all general hospitals, the number of full-time personnel per 100 rated beds was 199.5; provincially, this ratio varied from 154.1 in Alberta to 235.3 in Ontario. General and allied special hospitals combined experienced a ratio of 190.6 full-time personnel per 100 rated beds; in mental hospitals, this ratio was 75.9 compared with 71.2 in 1968 and in tuberculosis sanatoria, 92.9 compared with 91.6 in 1968. It is interesting to note that the proportion of the Canadian civilian labour force, both full-time and part-time, in all Canadian hospitals gradually increased from 3.7 p.c. in 1961 to 4.5 p.c. in 1969.



### 8.—Average Length of Stay of Adults and Children in Public General and Allied Special Hospitals, by Province, 1969

Type of Hospital	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Canada
	days	days	days	days	days	days	days	days	days	days	days	days	days
General—													
Non-teaching—													
No long-term units.....	7.9	9.5	10.2	9.2	9.2	9.3	7.8	7.9	7.5	8.0	5.8	8.7	8.7
1 - 24 beds....	5.2	8.7	8.0	9.1	7.6	6.4	7.3	7.2	7.9	7.3	5.8	5.6	7.2
25 - 49 ".....	7.0	8.8	8.8	8.1	8.5	8.8	7.3	7.3	6.7	7.3	—	9.6	7.5
50 - 99 ".....	7.1	7.0	9.1	8.3	8.4	9.5	7.5	8.5	7.6	7.8	—	—	8.2
100 - 199 ".....	10.7	9.4	11.1	10.0	8.7	9.3	9.9	9.5	8.3	8.3	—	—	9.1
200+ ".....	10.2	10.7	11.4	10.4	10.2	9.3	9.7	—	8.2	8.5	—	—	9.6
Long-term units..	11.9	10.0	—	13.7	14.4	11.9	8.5	—	11.6	11.3	—	—	12.0
1 - 99 beds....	11.9	—	—	—	11.0	11.7	7.6	—	11.6	10.4	—	—	11.2
100 - 199 "....	—	10.0	—	—	17.1	10.5	10.1	—	—	10.7	—	—	11.1
200+ ".....	—	—	—	13.7	13.4	12.4	—	—	—	12.3	—	—	12.5
Totals, Non-teaching....	8.1	9.6	10.2	9.9	9.7	10.4	7.9	7.9	7.5	8.8	5.8	8.7	9.5
Teaching—													
Full.....	—	—	14.3	—	12.5	13.1	11.5	14.2	10.1	11.8	—	—	12.3
1 - 499 beds....	—	—	—	—	12.9	10.5	—	—	—	—	—	—	11.4
500+ ".....	—	—	14.3	—	12.4	13.5	11.5	14.2	10.1	11.8	—	—	12.4
Partial.....	13.7	—	10.6	13.2	11.2	10.7	9.5	11.4	10.9	10.2	—	—	11.1
1 - 499 beds....	13.7	—	10.6	10.4	10.6	10.0	9.5	11.3	9.6	10.4	—	—	10.8
500+ ".....	—	—	—	18.4	13.2	10.7	—	11.4	11.1	9.8	—	—	11.5
Totals, General.....	9.9	9.6	10.7	10.8	10.7	11.0	9.2	9.3	8.9	9.4	5.8	8.7	10.3
Children's.....	11.2	—	8.0	—	9.1	8.7	8.1	—	8.0	—	—	—	8.9
Convalescent/ rehabilitation.....	61.3	40.8	32.6	68.7	50.8	42.8	43.1	—	43.2	41.0	—	—	45.3
Chronic/extended care.....	246.5	—	—	—	250.5	243.0	120.2	—	252.5	432.0	—	—	237.6
Other.....	5.3	—	7.3	—	12.6	10.8	—	248.6	8.0	7.5	—	—	15.0
<b>All Public General and Allied Special Hospitals.....</b>	<b>10.3</b>	<b>9.8</b>	<b>10.6</b>	<b>11.1</b>	<b>12.7</b>	<b>12.3</b>	<b>10.5</b>	<b>10.5</b>	<b>11.3</b>	<b>10.0</b>	<b>5.8</b>	<b>8.7</b>	<b>11.7</b>

### 9.—Full-Time Personnel Employed in Operating Public, Private and Federal Hospitals, by Province, 1969

Province or Territory	General <sup>1</sup>		General and Allied Special <sup>1</sup>		Mental		Tuberculosis	
	Number	Per 100 Rated Beds	Number	Per 100 Rated Beds	Number	Per 100 Rated Beds	Number	Per 100 Rated Beds
Newfoundland.....	5,060	203.7	5,694	190.1	695	84.0	197	88.3
Prince Edward Island.....	1,100	157.6	1,139	156.5	279	71.4	47	235.0
Nova Scotia.....	8,896	191.2	9,734	193.6	1,610	87.5	483	137.2
New Brunswick.....	8,286	191.0	8,424	189.5	1,223	64.2	—	—
Quebec.....	64,906	191.8	80,290	189.3	13,573	68.1	930	83.0
Ontario.....	83,526	235.3	93,853	217.3	18,532	89.3	690	68.9
Manitoba.....	10,622	200.7	12,637	194.2	2,073	78.0	217	104.8
Saskatchewan.....	10,447	197.2	11,012	192.1	1,656	56.7	277	116.4
Alberta.....	18,919	154.1	21,747	149.8	3,696	74.9	455	118.5
British Columbia.....	19,787	173.3	21,143	155.6	3,812	58.4	159	91.4
Yukon Territory.....	146	172.8	155	162.3	—	—	—	—
Northwest Territories.....	325	170.8	393	164.5	—	—	—	—
<b>Canada.....</b>	<b>232,020</b>	<b>199.5</b>	<b>266,221</b>	<b>190.6</b>	<b>47,149</b>	<b>75.9</b>	<b>3,455</b>	<b>92.9</b>

<sup>1</sup> Excludes paid medical staff.

Table 10 gives financial data related to public hospitals in operation during 1969. Revenues for general and allied special hospitals together totalled \$1,893,430,000, 14.2 p.c. more than in 1968. General hospitals alone accounted for 87.9 p.c. of total revenue received and experienced a 10-p.c. increase in revenue over the previous year. Net in-patient earnings accounted for 88.1 p.c. of general hospital revenues, ranging from 84.3 p.c. in the 1-24 bed non-teaching hospitals with no long-term units, to 90.6 p.c. in the 100-199 bed non-teaching hospitals with long-term units.

Consistent with the upward trend of costs in recent years, expenditures in public general and allied special hospitals totalled \$1,966,559,000, 14.1 p.c. more than in 1968, which in turn had been 16.5 p.c. higher than in 1967; general hospitals expended 87.8 p.c. of this amount. Gross salaries and wages accounted for 70.2 p.c. of total general hospital expenditures; this percentage varied from 64.2 in 1-24 bed non-teaching hospitals with no long-term units, to 71.2 in 100-199 bed non-teaching hospitals with long-term units. Mental hospitals and tuberculosis sanatoria reported a significantly different distribution of expenditures; gross salaries and wages amounted to 75.9 p.c. of expenditures in mental hospitals and for 73.1 p.c. in tuberculosis sanatoria.

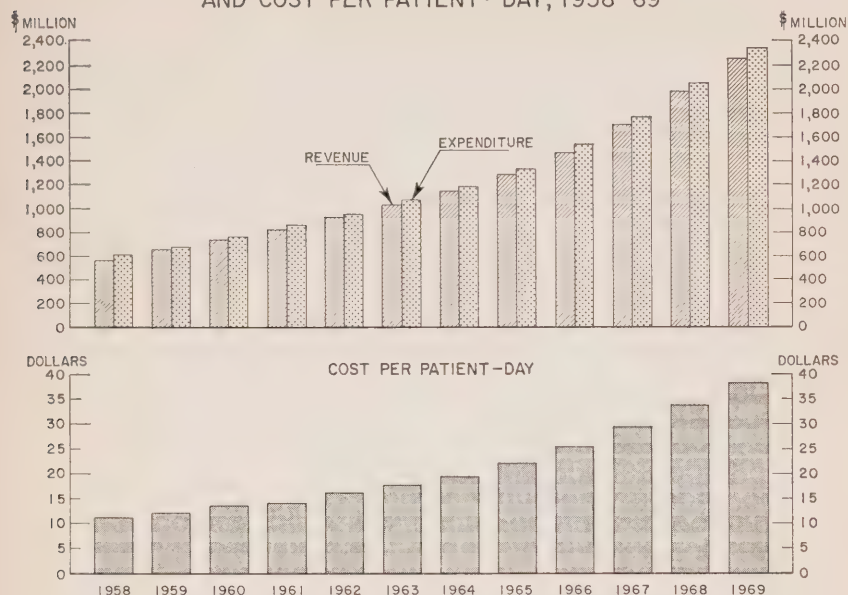
#### 10.—Revenues and Expenditures of Operating Public Hospitals, by Type, 1969

Type of Hospital	Operating Hospitals	Revenues <sup>1</sup>				Expenditures <sup>1</sup>				
		Net In-patient Earnings	Net Out-patient Earnings	Grants and Other Income	Total	Gross Salaries and Wages <sup>2</sup>	Medical and Surgical Supplies	Drugs	Other	Total
	No.	p.c.	p.c.	p.c.	\$'000	p.c.	p.c.	p.c.	p.c.	\$'000
<b>General—</b>										
Non-teaching—										
No long-term units.....	677	87.8	8.2	4.0	593,055	69.1	2.9	3.4	24.6	620,922
1-24 beds ..	221	84.3	9.1	6.6	30,879	64.2	2.4	4.3	29.2	32,909
25-49 " ..	188	87.5	7.9	4.6	59,912	65.1	2.3	3.9	23.8	63,331
50-99 " ..	111	88.6	7.9	3.5	83,703	68.8	2.6	3.6	25.0	88,047
100-199 " ..	96	88.2	8.0	3.8	171,280	70.9	2.9	3.5	22.8	179,274
200 + " ..	61	87.6	8.4	4.0	247,281	69.5	3.3	3.2	24.1	257,361
Long-term units	107	89.1	7.7	3.2	237,825	69.7	2.6	3.0	24.6	243,693
1-99 beds..	43	89.8	8.0	2.2	31,802	68.4	2.4	3.4	25.8	32,477
100-199 " ..	30	90.6	7.2	2.2	49,414	71.2	2.8	3.1	23.0	51,437
200 + " ..	34	83.5	7.8	3.7	156,609	69.5	2.6	2.9	25.0	159,779
<b>Totals, Non-teaching.....</b>	<b>784</b>	<b>88.1</b>	<b>8.1</b>	<b>3.8</b>	<b>830,880</b>	<b>69.2</b>	<b>2.8</b>	<b>3.3</b>	<b>24.6</b>	<b>864,615</b>
<b>Teaching—</b>										
Full.....	31	88.1	6.9	5.0	467,733	70.8	3.6	3.4	22.1	485,182
1-499 beds..	5	87.0	8.5	4.6	55,989	70.6	3.2	3.6	22.6	38,424
500 + " ..	26	88.1	6.8	5.1	431,744	70.9	3.7	3.4	22.1	446,758
Partial.....	49	88.0	6.8	5.2	365,067	70.9	3.4	3.1	22.5	377,568
1-499 beds..	34	86.8	7.3	6.0	188,669	70.8	3.2	3.3	22.5	197,197
500 + " ..	15	89.2	6.2	4.6	176,398	71.0	3.5	2.9	22.5	180,371
<b>Totals, General..</b>	<b>864</b>	<b>88.1</b>	<b>7.5</b>	<b>4.5</b>	<b>1,663,680</b>	<b>70.2</b>	<b>3.2</b>	<b>3.3</b>	<b>23.4</b>	<b>1,727,365</b>
<b>Allied Special—</b>										
Children's.....	7	80.5	8.7	10.8	62,084	71.5	2.9	3.3	22.2	65,175
Convalescent/rehabilitation	24	88.6	4.4	7.0	27,147	68.3	1.1	1.5	29.0	27,842
Chronic/extended care.....	93	96.3	0.5	3.2	95,401	74.2	1.3	2.3	22.3	98,562
Other.....	52	81.1	9.5	9.4	45,118	70.4	2.3	2.6	24.7	47,615
<b>All Public General and Allied Special Hospitals.....</b>	<b>1,040</b>	<b>88.1</b>	<b>7.2</b>	<b>4.8</b>	<b>1,893,430</b>	<b>70.3</b>	<b>3.0</b>	<b>3.2</b>	<b>23.4</b>	<b>1,966,559</b>
<b>Mental.....</b>	<b>108</b>	<b>98.0</b>	<b>0.4</b>	<b>1.6</b>	<b>343,870</b>	<b>75.9</b>	<b>0.5</b>	<b>2.2</b>	<b>21.4</b>	<b>352,168</b>
<b>Tuberculosis.....</b>	<b>32</b>	<b>88.4</b>	<b>1.7</b>	<b>9.9</b>	<b>26,404</b>	<b>73.1</b>	<b>0.9</b>	<b>2.4</b>	<b>23.6</b>	<b>26,908</b>

<sup>1</sup> Due to rounding, the components may not add to 100 p.c.

<sup>2</sup> Includes medical staff remuneration.

# REVENUES AND EXPENDITURES OF PUBLIC HOSPITALS\* AND COST PER PATIENT-DAY, 1958-69



\*GENERAL, ALLIED SPECIAL, MENTAL AND TUBERCULOSIS

Table 11 shows the more than proportionate increase in gross salaries and wages as a component of total expenditures from 1968 to 1969; this component increased its share of the total by at least 1.5 p.c. in each province. As experienced in 1968, gross salaries and wages as a component of total expenditure was generally lower in the Atlantic Provinces than elsewhere in Canada.

**11.—Revenues and Expenditures of Operating Public General Hospitals,<sup>1</sup> by Province, 1968 and 1969**

Province or Territory	Operating Hospitals	Total Revenue	Expenditures <sup>2</sup>				
			Gross Salaries and Wages <sup>3</sup>	Medical and Surgical Supplies	Drugs	Other	Total
1968	No.	\$'000	p.c.	p.c.	p.c.	p.c.	\$'000
Newfoundland.....	33	33,202	57.5	3.7	4.4	34.4	35,817
Prince Edward Island.....	8	5,491	59.7	3.2	4.0	33.1	5,671
Nova Scotia.....	44	53,078	59.8	2.9	3.2	34.1	54,377
New Brunswick.....	38	45,382	62.7	3.6	3.4	30.3	46,079
Quebec.....	139	410,156	70.0	3.3	3.6	23.1	442,066
Ontario.....	185	593,541	65.9	3.0	3.2	27.9	602,229
Manitoba.....	79	64,442	65.7	3.7	3.9	26.7	64,761
Saskatchewan.....	143	68,689	64.1	3.3	3.6	29.0	72,301
Alberta.....	116	108,767	64.2	2.9	3.2	29.7	114,550
British Columbia.....	87	128,411	69.4	3.4	3.3	23.9	134,244
Yukon Territory.....	2	122	56.4	2.5	6.5	34.6	222
Northwest Territories.....	7	1,266	57.3	3.0	2.7	37.0	1,398

For footnotes, see end of table, p. 324.



### 11.—Revenues and Expenditures of Operating Public General Hospitals,<sup>1</sup> by Province, 1968 and 1969—concluded

Province or Territory	Operating Hospitals	Total Revenue	Expenditures <sup>2</sup>				
			Gross Salaries and Wages <sup>3</sup>	Medical and Surgical Supplies	Drugs	Other	Total
1969	No.	\$'000	p.c.	p.c.	p.c.	p.c.	\$'000
Newfoundland.....	33	31,669	59.0	3.4	4.6	33.0	34,429
Prince Edward Island.....	8	6,400	63.7	3.3	4.0	29.0	6,556
Nova Scotia.....	43	57,921	62.3	3.1	3.2	31.4	59,141
New Brunswick.....	37	50,501	67.1	3.7	3.2	26.0	51,541
Quebec.....	135	440,808	74.1	3.2	3.5	19.2	474,188
Ontario.....	186	654,876	69.3	3.0	3.0	24.6	663,178
Manitoba.....	78	67,683	67.5	3.6	3.9	25.0	67,682
Saskatchewan.....	132	76,555	67.0	3.2	3.6	26.2	80,306
Alberta.....	115	123,599	67.8	2.9	3.2	26.2	129,242
British Columbia.....	88	152,035	72.5	3.6	3.3	20.6	159,186
Yukon Territory.....	2	135	58.8	3.0	6.2	32.1	235
Northwest Territories.....	7	1,497	59.3	2.2	2.3	36.2	1,681

<sup>1</sup> Excludes children's hospitals in 1969, included in 1968.  
<sup>2</sup> Includes medical staff remuneration.

<sup>3</sup> Due to rounding, the components may not add to 100 p.c.

Generally, salaries of hospital nursing personnel were 19.5 p.c. higher in 1970 than in 1968 and varied directly according to academic qualifications. For general-duty registered nurses employed in public general hospitals, the average annual salary varied from \$6,475 for those classified as graduate nurse only, to \$9,705 for those with a master's degree in nursing (Table 12). Among graduate nurses without additional qualifications in public general hospitals, directors of nursing education received the highest average salary (\$9,423) and general-duty nurses (not registered) the lowest (\$5,776). On the average, general-duty nurses (registered) without additional qualifications employed in hospitals designated "other" (maternity, communicable disease, orthopaedic and cancer hospitals), earned more (\$6,650) than their counterparts in other types of hospitals.

### 12.—Average Annual Salaries of Nursing Personnel in Public Hospitals, by Academic Qualifications, Employment Category and Type of Hospital, 1970

(Excludes shift differential pay)

Category	Average Salary	Category	Average Salary
	\$		\$
<b>Academic Qualifications—<sup>1</sup></b>		<b>Employment Category—concluded</b>	
Graduate nurse only.....	6,475	Assistant head nurse.....	7,262
Clinical postgraduate training.....	7,040	Teacher.....	7,427
University diploma—one year.....	7,090	General Duty—	
Bachelor's degree in nursing.....	7,161	Registered.....	6,475
Master's degree in nursing.....	9,705	Not registered.....	5,776
<b>Employment Category—<sup>2</sup></b>		<b>Type of Public Hospital —<sup>3</sup></b>	
Director nursing education.....	9,423	General.....	6,475
Associate or assistant nursing director.....	9,130	Chronic, convalescent and rehabilitation....	6,589
Associate or assistant director nursing education.....	8,597	Mental.....	6,611
Nursing supervisor.....	8,486	Tuberculosis.....	6,536
Head nurse.....	7,922	Other.....	6,650

<sup>1</sup> General-duty (registered) nurse—public general hospitals.  
<sup>2</sup> Graduate nurse without additional qualifications—public general hospitals.

<sup>3</sup> General-duty (registered) nurse without additional qualifications.

The cost per patient-day in public general hospitals increased from \$48.44 in 1968 to \$53.73 in 1969; this 10.9-p.c. increase was somewhat less than the 11.6-p.c. increase experienced in 1968 over 1967. Among general hospitals, the per diem rate was lowest in the non-teaching hospitals with no long-term units and 1-24 beds (\$36.72) and highest in full-teaching hospitals with 1-499 beds (\$75.78). In the allied special group, children's hospitals had the highest per diem rate at \$86.89 and chronic/extended care hospitals had the lowest at \$22.23. All public general and allied special hospitals had a combined per patient-day revenue of \$51.75 and expenditure of \$53.73. Mental hospitals and tuberculosis sanatoria had per diem expenses of \$16.95 and \$30.77, respectively (Table 13).

Provincially, public general hospitals in Prince Edward Island had the lowest cost per patient-day at \$34.46 and Quebec had the highest at \$59.89. The per capita cost of operating and maintaining all public hospitals increased by 134.7 p.c. during the period 1961-69, rising from \$47.46 to \$111.37.

**13.—Patient-Day<sup>1</sup> Revenue and Expenditure Ratios of Operating Public Hospitals, by Size and Type of Hospital, 1969**

Type of Hospital	Operating Hospitals	Revenues		Expenditures			
		Net In-patient Earnings	Total	Gross Salaries and Wages <sup>2</sup>	Medical and Surgical Supplies	Drugs	Total
	No.	\$	\$	\$	\$	\$	\$
General—							
Non-teaching—							
No long-term units.....	677	39.61	45.13	32.64	1.38	1.63	47.26
1 - 24 beds.....	221	29.07	34.47	23.54	0.87	1.68	36.72
25 - 49 ".....	188	31.16	35.59	24.50	0.85	1.45	37.62
50 - 99 ".....	111	35.61	40.06	29.04	1.08	1.50	42.14
100 - 199 ".....	96	41.83	46.86	34.77	1.42	1.70	49.04
200 + ".....	61	45.01	51.36	37.12	1.77	1.70	53.46
Long-term units.....	107	38.84	43.60	31.15	1.18	1.34	44.67
1 - 99 beds.....	43	34.94	38.93	27.21	0.96	1.35	39.76
100 - 199 ".....	30	35.48	39.16	29.01	1.14	1.25	40.77
200 + ".....	34	41.04	46.38	32.91	1.24	1.37	47.32
Totals, Non-teaching.....	784	39.38	44.68	32.20	1.32	1.54	46.50
Teaching—							
Full.....	31	58.44	66.36	48.78	2.51	2.34	68.84
1 - 499 beds.....	5	61.73	70.88	53.54	2.46	2.69	75.78
500 + ".....	26	58.18	66.01	48.41	2.61	2.31	68.30
Partial.....	49	49.32	56.06	41.14	1.98	1.81	57.98
1 - 499 beds.....	34	48.12	55.41	41.03	1.94	1.91	67.92
500 + ".....	15	50.63	56.77	41.27	2.02	1.71	58.05
Totals, General.....	864	45.58	51.75	37.65	1.72	1.77	53.73
Allied Special—							
Children's.....	7	66.61	82.77	62.15	2.54	2.90	86.89
Convalescent/rehabilitation.....	24	29.44	33.23	23.30	0.38	0.53	34.08
Chronic/extended care.....	93	20.72	21.51	16.49	0.29	0.50	22.23
Other.....	52	58.54	72.20	53.79	1.78	1.98	76.43
<b>All Public General and Allied Special Hospitals.....</b>	<b>1,040</b>	<b>42.99</b>	<b>48.80</b>	<b>35.64</b>	<b>1.54</b>	<b>1.63</b>	<b>50.69</b>
Mental.....	108	16.27	16.60	12.95	0.07	0.44	16.95
Tuberculosis.....	32	26.72	30.20	22.49	0.27	0.74	30.77

Adults and children.

<sup>2</sup> Includes medical staff remuneration.

**14.—Patient-Day<sup>1</sup> Revenue and Expenditure Ratios of Operating Public Hospitals,  
by Province and Type of Hospital, 1969**

Province and Type of Hospital	Revenues		Expenditures			
	Net In-patient Earnings	Total	Gross Salaries and Wages <sup>2</sup>	Medical and Surgical Supplies	Drugs	Total
	\$	\$	\$	\$	\$	\$
<b>Newfoundland—</b>						
General.....	36.90	46.19	29.65	1.72	2.29	50.21
Allied Special—						
Children's.....	41.10	48.64	30.54	1.95	1.32	51.92
Convalescent/rehabilitation.....	27.32	33.55	22.45	0.33	0.26	34.94
Chronic/extended care.....	8.73	10.91	9.55	0.11	0.19	12.97
Other.....	38.93	45.92	23.84	0.35	5.27	43.59
Mental.....						
Tuberculosis.....	23.57	24.46	17.53	0.42	0.82	24.47
<b>Prince Edward Island—</b>						
General.....	28.55	34.46	22.51	1.17	1.40	35.30
Allied Special—						
Convalescent/rehabilitation.....	25.90	35.22	26.94	0.51	0.43	35.67
Mental.....	8.54	8.69	9.36	0.13	0.35	13.02
Tuberculosis.....	38.25	43.76	28.98	1.12	0.63	43.77
<b>Nova Scotia—</b>						
General.....	40.86	48.50	30.84	1.54	1.59	49.52
Allied Special—						
Children's.....	59.21	67.66	46.35	2.19	1.63	67.78
Convalescent/rehabilitation.....	28.44	37.77	24.39	0.72	0.77	37.82
Other.....	59.87	65.65	41.96	1.45	1.57	66.14
Mental.....	17.34	18.66	13.51	0.10	0.45	18.66
Tuberculosis.....	36.99	40.52	30.22	0.48	0.38	40.53
<b>New Brunswick—</b>						
General.....	37.28	42.76	29.26	1.62	1.40	43.64
Allied Special—						
Convalescent/rehabilitation.....	26.75	28.01	19.89	0.52	0.64	28.20
Mental.....	10.76	10.93	8.12	0.06	0.26	10.92
<b>Quebec—</b>						
General.....	51.51	59.89	47.72	2.08	2.27	64.42
Allied Special—						
Children's.....	69.06	87.65	73.09	2.98	2.66	92.46
Convalescent/rehabilitation.....	28.86	32.04	23.83	0.39	0.60	33.77
Chronic/extended care.....	21.51	22.04	18.05	0.29	0.58	22.94
Other.....	63.19	70.09	56.32	2.20	2.10	75.53
Mental.....	14.52	14.93	11.54	0.05	0.50	16.01
Tuberculosis.....	23.40	24.41	19.60	0.20	1.09	26.24
<b>Ontario—</b>						
General.....	48.44	54.30	38.12	1.67	1.65	54.99
Allied Special—						
Children's.....	78.28	98.16	67.55	2.48	4.15	103.62
Convalescent/rehabilitation.....	28.46	29.99	19.73	0.32	0.44	30.52
Chronic/extended care.....	23.17	24.12	17.48	0.32	0.48	24.06
Other.....	76.98	114.61	74.26	1.86	2.95	120.89
Mental.....	20.41	20.74	16.75	0.07	0.28	20.67
Tuberculosis.....	27.68	32.14	22.54	0.26	0.27	32.50
<b>Manitoba—</b>						
General.....	40.93	45.77	30.91	1.65	1.76	45.77
Allied Special—						
Children's.....	60.04	72.10	53.01	2.42	2.96	73.79
Convalescent/rehabilitation.....	34.44	46.49	25.88	0.64	1.32	46.49
Chronic/extended care.....	24.93	26.26	20.22	0.42	0.84	26.26

<sup>1</sup> Adults and children.<sup>2</sup> Includes medical staff remuneration.



**14.—Patient-Day<sup>1</sup> Revenue and Expenditure Ratios of Operating Public Hospitals,  
by Province and Type of Hospital, 1969—concluded**

Province and Type of Hospital	Revenues		Expenditures			
	Net In-patient Earnings	Total	Gross Salaries and Wages <sup>2</sup>	Medical and Surgical Supplies	Drugs	Total
	\$	\$	\$	\$	\$	\$
<b>Manitoba—concluded</b>						
Mental.....	12.56	12.79	9.82	0.05	0.20	12.71
Tuberculosis.....	21.56	24.87	17.13	0.27	0.36	25.39
<b>Saskatchewan—</b>						
General.....	36.48	40.78	28.63	1.38	1.54	42.76
Allied Special—						
Other.....	23.75	30.05	21.41	0.84	0.40	30.53
Mental.....	13.61	13.86	10.57	0.06	0.33	13.86
Tuberculosis.....	18.59	27.95	19.17	0.14	0.44	26.20
<b>Alberta—</b>						
General.....	40.29	45.16	31.97	1.38	1.51	47.22
Allied Special—						
Children's.....	32.94	37.51	30.43	0.77	0.82	38.45
Convalescent/rehabilitation.....	38.84	43.24	29.73	0.41	0.36	43.19
Chronic/extended care.....	15.37	15.96	10.84	0.17	0.35	17.03
Other.....	77.39	97.74	71.08	1.63	2.82	98.92
Mental.....	12.78	12.98	9.30	0.04	0.26	12.98
Tuberculosis.....	39.96	49.17	38.14	0.16	0.97	49.18
<b>British Columbia—</b>						
General.....	41.21	45.42	34.48	1.70	1.58	47.56
Allied Special—						
Convalescent/rehabilitation.....	22.92	27.02	22.80	0.20	0.26	30.51
Chronic/extended care.....	15.47	15.64	14.68	0.35	0.28	19.44
Other.....	45.90	70.22	54.64	1.12	1.96	75.34
Mental.....	15.00	15.00	10.31	0.26	0.39	14.32
Tuberculosis.....	29.68	29.68	22.22	0.56	1.56	29.69
<b>Yukon Territory—</b>						
General.....	41.00	50.63	51.72	2.60	5.43	87.96
<b>Northwest Territories—</b>						
General.....	32.23	38.34	25.77	0.96	1.02	43.47

<sup>1</sup> Adults and children.<sup>2</sup> Includes medical staff remuneration.

**Subsection 2.—Morbidity, Notifiable Diseases and Other Health Statistics\***

**Morbidity.**—A growing need for additional information on illness in Canada was met in part by a statistical program first undertaken for 1960 involving separations (discharges and deaths) from the general and allied special hospitals. The program provided data on primary diagnosis, days of care, length of illness and age composition for all hospital patients except those in mental hospitals and tuberculosis sanatoria. (Age, sex and diagnostic information on persons treated in mental hospitals and in tuberculosis sanatoria has been available at the national level for many years but no similar information has been available for persons treated in the other kinds of hospitals.) About 100 out of every 1,000 persons

\* Prepared in the Public Health Section, Health and Welfare Division, Statistics Canada.

are hospitalized during a year and, of these, 96 or 97 are treated in general and allied special hospitals. The 1968 data were the latest available at the time of preparation of this Subsection.

It should be noted that the picture of morbidity provided by these statistics is not, of course, complete. A total morbidity picture would include not only the morbidity covered by in-patient hospital care but also out-patient morbidity, morbidity covered by treatment outside the hospitals, and morbidity for which no treatment is received. Nevertheless, the illnesses that receive hospital care are, in general, more serious and more important than the illnesses that do not receive hospital care and this, together with the fact that the diagnostic quality of hospital morbidity statistics is very high, makes hospital morbidity statistics a most important source of information. Tables 15 and 16 present, for 1968, adult and child patients (excluding newborn) in terms of 17 diagnostic categories (Canadian) which consolidate the much more detailed international classification of diseases.

**15.—Hospital Separations, Separations and Days per 100,000 Population, and Average Days of Stay, by Diagnostic Category, 1968**

(Excluding newborn and data for the Yukon and Northwest Territories)

Diagnostic Category <sup>1</sup>	Separations	Separations per 100,000 Population	Days per 100,000 Population	Average Days of Stay
	No.	No.	No.	No.
Infective and Parasitic Diseases.....	40,436	195	2,760	14.1
Neoplasms.....	188,105	909	15,539	17.1
Allergic, Endocrine System, Metabolic and Nutritional Diseases	98,515	476	7,383	15.5
Diseases of the Blood and Blood-Forming Organs.....	19,209	93	1,325	14.3
Mental, Psychoneurotic and Personality Disorders.....	106,745	516	9,408	18.2
Diseases of the Nervous System and Sense Organs.....	170,783	825	18,463	22.4
Diseases of the Circulatory System.....	275,890	1,333	25,885	19.4
Diseases of the Respiratory System.....	505,278	2,441	16,131	6.6
Diseases of the Digestive System.....	444,683	2,148	21,831	10.2
Diseases of the Genito-Urinary System.....	290,025	1,401	12,293	8.8
Deliveries and Complications of Pregnancy, Childbirth and the Puerperium.....	488,581	2,360	13,683	5.8
Diseases of the Skin and Cellular Tissue.....	56,198	271	2,703	10.0
Diseases of the Bones and Organs of Movement.....	123,871	598	10,185	17.0
Congenital Malformations.....	33,991	164	2,334	14.2
Certain Diseases of Early Infancy.....	9,625	47	606	13.0
Symptoms, Senility and Ill-Defined Conditions.....	91,495	442	3,256	7.4
Accidents, Poisonings and Violence (nature of injury).....	294,979	1,425	15,765	11.1
Supplementary Classifications for Special Admissions.....	16,756	81	1,191	14.7
<b>All Causes.....</b>	<b>3,255,165</b>	<b>15,725</b>	<b>180,743</b>	<b>11.5</b>

<sup>1</sup> Major groupings of the International Classification of Diseases. Information on the detailed categories included in these main groupings is available in Statistics Canada publication *Hospital Morbidity* (Catalogue No. 82-206).

### 16.—Hospital Separations per 100,000 Population, by Diagnostic Category and Age Group, 1968

(Excluding newborn and data for the Yukon and Northwest Territories)

Diagnostic Category <sup>1</sup>	Age Group					Total
	Under 15	15-24	25-44	45-64	65+	
Infective and Parasitic Diseases.....	309	176	123	119	185	195
Neoplasms.....	127	391	945	1,764	3,156	909
Allergic, Endocrine System, Metabolic and Nutritional Diseases.....	283	215	342	821	1,480	476
Diseases of the Blood and Blood-Forming Organs.....	86	40	56	102	343	93
Mental, Psychoneurotic and Personality Disorders.....	98	429	835	873	554	516
Diseases of the Nervous System and Sense Organs.....	707	312	447	1,009	3,258	825
Diseases of the Circulatory System.....	184	206	874	2,711	6,838	1,333
Diseases of the Respiratory System.....	4,993	1,332	867	1,158	2,597	2,441
Diseases of the Digestive System.....	1,418	1,468	2,111	3,248	4,222	2,148
Diseases of the Genito-Urinary System.....	488	1,066	2,010	2,049	2,408	1,401
Deliveries and Complications of Pregnancy, Childbirth and the Puerperium.....	6	6,257	5,016	46	—	2,360
Diseases of the Skin and Cellular Tissue.....	308	249	211	272	368	271
Diseases of the Bones and Organs of Movement..	188	356	671	1,146	1,311	598
Congenital Malformations.....	359	117	75	58	36	164
Certain Diseases of Early Infancy.....	149	1	—	—	—	47
Symptoms, Senility and Ill-Defined Conditions..	403	338	423	529	719	442
Accidents, Poisonings and Violence (nature of injury).....	1,224	1,696	1,276	1,344	2,306	1,425
Supplementary Classifications for Special Admissions.....	44	74	91	92	189	81
<b>All Causes.....</b>	<b>11,357</b>	<b>14,722</b>	<b>16,374</b>	<b>17,340</b>	<b>29,968</b>	<b>15,725</b>

<sup>1</sup> See footnote to Table 15, p. 328.

There were 1,564,378 primary operations performed in general and allied special hospitals in 1968. A new statistical program provides the data contained in Tables 17 and 18.

### 17.—Separated Cases and Operations in General and Allied Special Hospitals, by Age Group, 1968

Item	Under 15 <sup>1</sup>	15-24	25-44	45-64	65+	Total
All Separated Cases—						
Cases.....No.	1,108,634	532,595	848,999	648,858	480,541	3,619,627
Days in hospital.....“	7,680,837	3,666,113	7,388,218	9,266,809	11,900,524	39,902,501
Av. days per case.....“	6.9	6.9	8.7	14.3	24.8	11.0
Separated Cases Undergoing Surgery—						
Cases (primary operations).....No.	388,306	268,845	445,550	309,559	152,118	1,564,378
Days in hospital.....“	2,047,299	1,864,236	3,867,478	4,123,608	3,211,247	15,113,868
Av. days per case.....“	5.3	6.9	8.7	13.3	21.1	9.7
Rates per 100,000 Population—						
All separated cases.....	16,919	14,722	16,374	17,340	29,968	17,485
All operated cases.....	5,926	7,432	8,593	8,273	9,487	7,557
Days of all separated cases.....No.	117,216	101,341	142,489	247,643	742,159	192,757
Days of all operated cases.....“	31,244	51,532	74,588	110,198	200,265	73,011
Population <sup>2</sup> .....	6,552,700	3,617,600	5,185,100	3,742,000	1,603,500	20,700,900

<sup>1</sup> Includes newborn cases plus cases under one year of age. Yukon and Northwest Territories.<sup>2</sup> Estimate of June 1, 1968, exclusive of the



### 18.—Primary Operations in General and Allied Special Hospitals, by Age Group and by Sex, 1968

Operation	Under 15 <sup>1</sup>	15-24	25-44	45-64	65+	Total
	No.	No.	No.	No.	No.	No.
Operations on nervous system.....M.	2,232	1,276	2,925	3,776	1,643	11,852
F.	1,512	914	2,310	2,803	1,180	8,719
Operations on endocrine system.....M.	266	145	327	425	122	1,285
F.	257	490	1,826	1,912	351	4,836
Operations on eye.....M.	8,425	1,939	2,694	5,065	6,766	24,889
F.	7,544	1,494	2,038	5,067	9,470	25,613
Operations on ear, nose and throat.....M.	9,139	7,962	10,582	7,279	2,359	37,321
F.	6,071	5,171	8,020	5,489	1,409	26,160
Operations on buccal cavity and esophagus....M.	91,557	14,076	10,218	4,156	1,498	121,505
F.	88,204	22,823	12,288	4,432	1,355	129,102
Operations on heart and intrathoracic vessels..M.	1,147	323	845	1,799	761	4,875
F.	1,061	330	963	1,219	531	4,104
Operations on bronchi, lung, pleura, chest wall and mediastinum.....M.	324	542	992	2,133	1,277	5,268
F.	178	217	630	955	528	2,508
Operations on breast.....M.	161	338	322	397	321	1,539
F.	146	3,161	11,115	8,888	2,621	25,931
Operations on gastrointestinal tract and related organs and tissues.....M.	25,309	13,710	33,751	44,612	21,037	138,419
F.	13,074	17,357	40,132	38,844	17,137	126,544
Operations on urinary and male genital systemsM.	64,989	3,777	7,615	15,568	22,369	114,318
F.	3,481	1,258	4,058	4,916	2,992	16,705
Operations on female genital organs, excl. obstetrical.....F.	1,123	21,202	94,116	54,319	8,194	178,954
Obstetrical procedures.....F.	174	94,736	100,920	775	1	196,606
Operations on musculoskeletal system.....M.	19,198	19,791	27,755	20,633	7,727	95,104
F.	12,855	9,060	15,034	20,727	15,203	72,869
Operations on peripheral blood vessels and lymphatic systems.....M.	683	648	2,397	4,857	1,860	10,445
F.	543	851	10,290	7,898	1,705	21,287
Operations on skin and subcutaneous tissue....M.	10,131	10,737	10,748	7,066	3,352	42,034
F.	7,569	6,358	6,397	6,058	3,335	29,717
Certain non-surgical procedures.....M.	5,396	3,370	12,113	15,167	8,969	45,015
F.	5,557	4,799	12,129	12,324	6,045	40,854
<b>All Operations.....M.</b>	<b>238,957</b>	<b>78,634</b>	<b>123,284</b>	<b>132,933</b>	<b>80,061</b>	<b>653,869</b>
<b>F.</b>	<b>149,349</b>	<b>190,211</b>	<b>322,266</b>	<b>176,626</b>	<b>72,057</b>	<b>910,509</b>
<b>T.</b>	<b>388,306</b>	<b>268,845</b>	<b>445,550</b>	<b>309,559</b>	<b>152,118</b>	<b>1,564,378</b>

<sup>1</sup> Includes newborn cases and cases under one year of age.

**Notifiable Diseases.**—The notifiable diseases most predominant in 1970, as in 1969, were venereal diseases (34,048 cases), measles (25,137 cases), rubella (12,710 cases), infectious and serum hepatitis (12,295 cases), and streptococcal sore throat and scarlet fever (10,422 cases). Table 19 shows the number of notifications and the rates per 100,000 of all notifiable diseases, by province, in that year.

19.—Reported Cases of Selected Notifiable Diseases and Rates per 100,000 Population, by Province, 1970

Inter-national List No.	Disease	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Canada
NUMBER OF CASES														
009.1	Diarrhoea of the newborn, epidemic	—	1	19	—	—	1	—	—	8	54	—	—	81
032	Diphtheria	—	—	—	—	—	323	4	5	23	9	—	—	47
004	Dysentery, bacillary	75	1	8	9	690	—	157	111	360	166	—	—	1,925
062.1	Food poisoning, western equine	—	1	—	—	—	—	—	—	—	—	—	—	—
005.0	Food poisoning, bacterial	40	3	37	8	—	—	87	46	19	10	—	—	253
005.1	Staphylococcal	40	3	37	8	—	—	87	46	19	8	—	—	251
005.1	Botulism	—	—	—	—	—	1	—	—	—	2	—	—	2
070	Hepatitis, infectious (including serum hepatitis)	722	1,259	411	132	426	2,303	2,124	1,087	1,530	1,910	220	81	12,295
999.2	Hepatitis, infectious	722	1,259	406	132	426	2,303	2,124	1,086	1,524	1,910	220	81	12,283
005	Hepatitis, serum	—	1	—	—	—	—	—	—	6	—	—	—	12
055	Measles	340	1	4,515	1	4,746	9,261	519	464	5,227	1	5	60	25,137
045.0	Meningitis, aseptic due to enteroviruses	9	1	17	3	—	1	37	19	10	32	—	—	163
045.1	Coxsackie virus	—	—	3	—	13	1	7	1	—	—	—	—	24
045.1	ECHO virus	—	—	—	—	—	1	—	—	—	—	—	—	6
045.9	Not specified	9	1	14	3	16	1	24	18	10	32	—	—	133
036	Meningococcal infections	22	6	15	2	20	39	31	32	21	14	—	—	205
056	Rubella (German measles)	157	1	276	4	1,658	4,725	1,536	547	3,188	56	563	3	12,710
003.0	Salmonella infections, other	44	6	146	27	717	1,146	46	197	360	532	—	—	3,226
003.0	With food as vehicle	—	6	48	7	667	1	6	6	18	532	—	—	3
003.9	Without mention of food as vehicle	44	2	98	20	50	1,146	45	191	342	644	6	—	1,939
034	Streptococcal sore throat and scarlet fever	324	3,387	1,514	26	460	1,416	321	1,017	1,280	—	—	—	10,422
010.011, 012-019	Tuberculosis	235	16	131	131	1,245	955	267	137	333	375	11	84	3,920
001	Typhoid and paratyphoid fever	4	—	1	6	32	10	7	3	6	5	—	—	74
002	Typhoid	1	—	1	4	25	7	4	3	4	4	—	—	51
002	Paratyphoid	3	—	—	2	7	3	3	2	2	1	—	—	23
098	Veneral diseases	462	22	235	536	4,961	9,356	3,091	2,412	4,418	6,377 <sup>1</sup>	235	943	34,048
090-097	Gonococcal infections	461	21	989	527	4,571	8,386	2,856	2,267	4,290	6,010	229	937	31,544
099.0 099.1	Syphilis	1	1	246	9	390	970	235	145	128	364	6	6	2,501
099.2	Other	—	—	—	—	—	—	—	—	—	—	—	—	3
033	Whooping cough	133	96	115	17	679	719	23	25	102	155	3	31	2,098

<sup>1</sup> Not reportable.

19.—Reported Cases of Selected Notifiable Diseases and Rates per 100,000 Population, by Province, 1970—concluded

Inter-national List No.	Disease	RATES PER 100,000 POPULATION												Canada
		Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	
009.1	Diarrhoea of the newborn, epidemic.	—	...	2.5	—	—	—	—	—	0.5	2.5	—	—	0.0
002	Diphtheria.	14.5	0.9	1.0	1.4	11.5	4.2	0.4	0.5	1.4	0.4	—	—	0.2
004	Dysentery, bacillary.	—	—	—	—	—	—	16.0	11.8	22.5	7.8	—	—	9.0
002.1	Encephalitis, western equine.	7.7	2.7	4.8	1.3	—	—	8.9	4.9	1.2	0.5	—	—	—
005.0	Food poisoning, bacterial.	7.7	2.7	4.8	1.3	—	—	8.9	4.9	1.2	0.4	—	—	—
005.1	Staphylococcal.	—	—	—	—	—	—	—	—	—	—	—	—	—
005.1	Botulism.	—	—	—	—	—	—	—	—	—	—	—	—	—
070	Hepatitis, infectious (including serum hepatitis).	139.4	1,144.5	53.7	21.2	7.1	31.3	216.5	115.4	95.6	89.4	1,375.0	245.5	57.5
999.2	Hepatitis, infectious.	139.4	1,144.5	53.0	21.2	7.1	31.3	216.5	115.3	95.3	89.4	1,375.0	245.5	57.5
005	Hepatitis, serum.	—	—	—	—	—	—	—	—	—	—	—	—	0.1
045.0	Measles.	65.6	...	589.4	...	78.9	121.3	52.9	49.3	326.7	...	31.3	181.8	135.8
045.1	Meningitis, aseptic due to enteroviruses.	1.7	...	0.4	...	0.5	...	3.8	2.0	0.6	1.5	...	21.2	1.2
045.9	Coxsackie virus.	—	...	—	...	0.2	...	0.7	0.1	—	—	—	—	0.2
036	ECHO virus.	—	...	—	...	—	...	0.6	—	—	—	—	—	—
036	Not specified.	1.7	...	1.8	0.5	0.3	...	2.4	1.9	0.6	1.5	...	21.2	1.0
036	Meningococcal infections.	4.2	5.5	2.0	0.3	0.3	0.5	3.2	3.4	1.3	0.7	...	9.1	1.0
056	Rubella (German measles).	30.3	...	36.0	0.6	27.6	61.9	156.6	58.1	199.3	...	350.0	1,706.1	66.4
003.0	Salmonella infections, other.	8.5	7.3	19.1	4.3	11.9	15.0	4.7	20.9	22.5	24.9	...	9.1	15.1
003.0	With food as vehicle.	8.5	5.5	6.3	1.1	11.1	15.0	0.1	0.6	1.1	24.9	...	6.1	9.4
003.9	Without mention of food as vehicle.	8.5	1.8	12.8	3.2	0.8	15.0	4.6	20.3	21.4	30.1	37.5	81.8	9.1
034	Streptococcal sore throat and scarlet fever.	62.5	3,079.1	197.7	4.2	7.7	18.5	32.7	108.0	80.0	30.1	37.5	81.8	48.8
010, 011, 012-019	Tuberculosis.	45.4	14.5	17.1	21.0	20.7	12.5	27.2	14.5	20.8	17.5	68.8	254.5	18.3
001	Typhoid and paratyphoid fever.	0.8	—	0.1	1.0	0.5	0.1	0.7	0.3	0.4	0.2	—	—	0.3
002	Typhoid.	0.2	—	0.1	0.6	0.4	0.1	0.4	0.1	0.3	0.2	—	—	0.2
002	Paratyphoid.	0.6	—	—	0.3	0.1	—	0.3	0.2	0.1	—	—	—	0.1
098	Veneral diseases.	89.2	20.0	161.2	85.9	82.5	122.5	315.1	256.1	276.1	298.4 <sup>p</sup>	1,408.8	2,887.6	159.3
090-097	Gonococcal infections.	89.0	19.1	129.1	84.5	76.0	109.8	291.1	240.7	268.1	281.2	1,431.3	2,839.4	147.6
099.0, 099.1, 099.2	Syphilis.	0.2	0.9	32.1	1.4	6.5	12.7	24.0	15.4	8.0	17.0	37.5	18.2	11.7
033	Other.	—	—	—	—	—	—	—	—	—	—	—	—	—
033	Whooping cough.	25.7	87.3	15.0	2.7	11.3	9.4	2.3	2.7	6.4	0.1	18.8	93.9	9.8



*Tuberculosis.*—There were 3,920 new active and 620 reactivated cases of tuberculosis reported in Canada in 1970—a total of 4,540 cases. Of 10,716 tuberculosis patients being treated at the end of 1970, 2,012 were hospital patients and 8,704 were being treated by drugs on an out-patient basis. In addition, there were 10,139 persons receiving preventive out-patient drug therapy as a safeguard against their developing active forms of the disease. Table 20 gives summary information relating to this disease.

20.—Summary Statistics on the Incidence of Tuberculosis, 1970

Province, Age Group and Origin	Notifications		Patients under Treatment at Dec. 31			Persons Receiving Preventive Out-patient Drug Treatment, Dec. 31	Deaths
	New Active Cases	Re- activated Cases	In- patients	Out- patients	Total		
Province	NUMBERS						
Newfoundland.....	235	29	97	375	472	50	14
Prince Edward Island.....	16	1	11	48	59	33	1
Nova Scotia.....	131	26	127	304	431	269	23
New Brunswick.....	131	19	85	401	486	267	11
Quebec.....	1,245	135	677	3,165	3,842	2,301	273
Ontario.....	955	217	464	2,042	2,506	4,790	102
Manitoba.....	267	36	121	435	556	733	24
Saskatchewan.....	137	13	81	240	321	126	20
Alberta.....	333	39	185	506	691	386	13
British Columbia.....	375	77	128	882	1,010	562	43
Yukon Territory.....	11	3	5	30	35	74	—
Northwest Territories.....	84	25	31	276	307	548	3
Canada.....	3,920	620	2,012	8,704	10,716	10,139	527
	RATES PER 100,000 POPULATION						
Newfoundland.....	45.4	5.6	18.6	72.0	90.6	9.6	2.9
Prince Edward Island.....	14.5	0.9	10.0	43.6	53.6	30.0	0.9
Nova Scotia.....	17.1	3.4	16.5	39.6	56.1	35.0	2.9
New Brunswick.....	21.0	3.0	13.6	64.1	77.6	44.7	1.8
Quebec.....	20.7	2.2	11.2	52.6	63.8	38.3	4.5
Ontario.....	12.5	2.8	6.0	26.3	32.3	62.1	1.3
Manitoba.....	27.2	3.7	12.3	44.3	56.6	74.9	2.2
Saskatchewan.....	14.5	1.4	8.7	24.9	34.7	13.6	2.1
Alberta.....	20.8	2.4	11.4	31.2	42.5	24.0	0.8
British Columbia.....	17.5	3.6	5.9	40.5	46.4	25.9	2.1
Yukon Territory.....	68.8	18.8	29.4	176.5	205.9	435.3	—
Northwest Territories.....	254.5	75.8	88.6	788.6	877.1	1,568.6	6.1
Canada.....	18.3	2.9	9.3	40.4	49.7	47.3	2.4
	NUMBERS						
Age Group	NUMBERS						
0-14.....	408	7	160	721	881	1,845	..
15-24.....	534	29	165	986	1,151	2,016	..
25-44.....	1,159	169	460	2,797	3,257	2,470	..
45-64.....	1,096	268	695	2,857	3,552	2,860	..
65 and over.....	723	147	532	1,343	1,875	948	..
Totals.....	3,920	620	2,012	8,704	10,716	10,139	..
	RATES PER 100,000 POPULATION						
0-14.....	6.3	0.1	2.5	11.1	13.5	28.5	..
15-24.....	13.6	0.7	4.2	24.9	29.1	51.3	..
25-44.....	21.6	3.1	8.5	51.6	60.1	45.8	..
45-64.....	27.8	6.8	17.5	71.8	89.3	72.2	..
65 and over.....	43.1	8.8	31.5	79.4	110.9	56.3	..
Totals.....	18.3	2.9	9.3	40.4	49.7	47.3	..

## 20.—Summary Statistics on the Incidence of Tuberculosis, 1970—concluded

Province, Age Group and Origin	Notifications		Patients under Treatment at Dec. 31			Persons Receiving Preventive Out-patient Drug Treatment, Dec. 31	Deaths
	New Active Cases	Re- activated Cases	In- patients	Out- patients	Total		
Origin <sup>1</sup>	NUMBERS						
Indians.....	462	69	259	907	1,166	808	..
Eskimos.....	105	25	36	281	317	384	..
Others.....	3,353	526	1,717	7,516	9,233	8,947	..
	PERCENTAGE DISTRIBUTION						
Indians.....	12	11	13	11	11	8	..
Eskimos.....	3	4	2	3	3	4	..
Others.....	85	85	85	86	86	88	..

<sup>1</sup> This classification is shown to point up the high incidence of tuberculosis among the native populations; Indians constituted 1.1 p.c of the total population in 1961 and Eskimos 0.1 p.c.

**Cancer.**—Statistics Canada started a national cancer incidence reporting system on Jan. 1, 1969, in co-operation with the National Cancer Institute and the nine existing provincial tumour registries; a registry has not yet been organized in Ontario. Participating provinces send a simple notification card with basic patient and diagnostic information for each new primary site of malignant neoplasm discovered. Results of the first year's operation of the reporting system are given in Table 21.

## 21.—Number of Malignant Neoplasms and Rates per 100,000 Population, 1969

Province or Territory of Residence	New Primary Sites	Deaths <sup>1</sup>	Hospital Morbidity Separations <sup>2</sup>	New Primary Sites	Deaths	Hospital Morbidity Separations
	1969	1969	1968	1969	1969	1968
	Number of Cases			Rates per 100,000 Population		
Newfoundland.....	1,060	511	1,730	206.2	99.4	341.2
Prince Edward Island.....	305	164	576	277.3	149.1	523.6
Nova Scotia.....	2,221	1,236	4,936	291.1	162.0	649.5
New Brunswick.....	1,931	872	3,181	309.0	139.5	509.8
Quebec.....	15,014	8,304	24,059	250.9	138.8	405.9
Ontario.....	..	10,661	33,328	..	143.1	456.2
Manitoba.....	3,249	1,556	6,248	331.9	158.9	643.5
Saskatchewan.....	3,486	1,289	5,765	363.5	134.4	598.7
Alberta.....	3,883	1,739	9,590	248.8	111.4	628.4
British Columbia.....	8,578	3,270	13,328	415.0	158.2	664.1
Yukon Territory.....	..	8	65	..	53.3	433.3
Northwest Territories.....	..	17	79	..	53.1	254.8
<b>Canada.....</b>	<b>39,727</b>	<b>29,627</b>	<b>102,885</b>	<b>292.9</b>	<b>140.7</b>	<b>495.9</b>

<sup>1</sup> Source: Vital Statistics Section, Statistics Canada. Include only the deaths where underlying cause was stated to be due to malignant neoplasms.

<sup>2</sup> Source: Public Health Section, Statistics Canada.

**Therapeutic Abortions.**—Therapeutic abortions performed in Canada in the first six months of 1971 totalled 14,188, according to reports to Statistics Canada by hospital authorities in all ten provinces and Yukon Territory; this was 3,036 more than the 11,152

therapeutic abortions reported for the full calendar year 1970. Patients with Canadian residence accounted for all but 20 of the 14,188 abortions in the 1971 six-month period, and in terms of rates per 100 live births the abortions for Canadian residents amounted to 7.6 p.c. of the live births (3 p.c. for the year 1970). Provincial rates varied from about 19 p.c. for British Columbia to about 11 p.c. for Ontario, 10 p.c. for Alberta, 4 p.c. for Saskatchewan, Manitoba and Nova Scotia, and less than 2 p.c. for Quebec, New Brunswick, Prince Edward Island and Newfoundland.

**22.—Number of Therapeutic Abortions Performed on Residents of Canada and Rates per 100 Live Births, by Province and by Quarter, 1970 and 1971**

Reporting Province or Territory	1970					1971		
	Jan.- Mar.	Apr.- June	July- Sept.	Oct.- Dec.	Total	Jan.- Mar.	Apr.- June	Total Jan.-June
NUMBERS								
Newfoundland.....	2	2	8	13	25	13	17	30
Prince Edward Island.....	3	2	8	4	17	4	11	15
Nova Scotia.....	19	48	68	126	261	135	142	277
New Brunswick.....	2	25	17	28	72	27	26	53
Quebec.....	33	63	151	287	534	427	428	855
Ontario.....	379	850	1,525	2,814	5,568	3,204	3,972	7,266
Manitoba.....	23	34	48	133	238	161	181	342
Saskatchewan.....	20	27	56	112	215	142	171	313
Alberta.....	62	144	326	622	1,154	753	745	1,498
British Columbia.....	192	406	880	1,423	2,901	1,698	1,717	3,415
Yukon Territory.....	1	2	—	3	6	1	4	5
<b>Canada<sup>1</sup>.....</b>	<b>743</b>	<b>1,622</b>	<b>3,156</b>	<b>5,631</b>	<b>11,152</b>	<b>6,699</b>	<b>7,469</b>	<b>14,168</b>
RATES PER 100 LIVE BIRTHS <sup>2</sup>								
Newfoundland.....	0.1	0.1	0.2	0.4	0.2	0.4	0.5	0.5
Prince Edward Island.....	0.6	0.4	1.6	0.8	0.8	0.8	2.1	1.5
Nova Scotia.....	0.6	1.3	1.9	4.0	1.9	4.1	4.0	4.0
New Brunswick.....	0.1	0.8	0.6	1.0	0.6	1.0	0.8	0.9
Quebec.....	0.1	0.2	0.6	1.3	0.6	1.8	1.6	1.7
Ontario.....	1.2	2.6	4.5	8.7	4.3	10.6	12.0	11.3
Manitoba.....	0.5	0.7	1.1	3.1	1.3	3.8	3.9	3.8
Saskatchewan.....	0.5	0.6	1.2	2.8	1.2	3.2	3.7	3.5
Alberta.....	0.8	1.8	4.1	8.4	3.7	10.0	9.4	9.7
British Columbia.....	2.2	4.4	9.7	16.5	8.2	19.9	18.7	19.3
Yukon Territory.....	0.8	1.8	—	2.9	1.3	0.8	3.5	2.1
<b>Canada<sup>1</sup>.....</b>	<b>0.8</b>	<b>1.7</b>	<b>3.3</b>	<b>6.4</b>	<b>3.0</b>	<b>7.5</b>	<b>7.8</b>	<b>7.6</b>

<sup>1</sup> Exclusive of the Northwest Territories. Includes some persons with Canadian residence but province of residence not known.

<sup>2</sup> Based on estimates of 1969 births.



### Subsection 3.—Numbers of Physicians and Earnings of Those in Private Practice

In December 1970 there were 31,166 active civilian physicians in Canada. Well over one third of them (11,851) were located in Ontario. British Columbia had the lowest population/physician ratio (627), followed by Ontario (654) and Quebec (682). The national average at December 1970 was 692 persons per physician.

Table 23 gives the provincial distribution and population/physician ratios for 1970 and also shows the trend in the national total since 1911. The figures include all junior and senior interns and residents and physicians engaged in administration, teaching, research, etc., within the medical field, as well as those in the clinical practice of medicine.

**23. —Physicians and Population per Physician, 1911-70, and by Province, 1970**

Source and Year	Active Civilian Physicians		Province or Territory	Active Civilian Physicians	
	Number	Population per Physician		Number	Population per Physician
<b>Census Data—<sup>1</sup></b>			<b>1970—<sup>2</sup></b>		
1911.....	7,411	970	Newfoundland.....	466	1,118
1921.....	8,706	1,008	Prince Edward Island.....	97	1,134
1931.....	10,020	1,034	Nova Scotia.....	1,032	744
1941.....	10,723	1,072	New Brunswick.....	568	1,102
1951.....	14,325	976	Quebec.....	8,831	682
1961.....	21,290	857	Ontario.....	11,851	654
<b>Department of National Health and Welfare—<sup>3</sup></b>			Manitoba.....	1,401	701
1962.....	23,248	808	Saskatchewan.....	1,152	804
1963.....	24,062	795	Alberta.....	2,256	720
1964.....	24,847	785	British Columbia.....	3,471	627
1965.....	25,481	779	Yukon Territory.....	20	850
1966.....	26,528	763	Northwest Territories.....	21	1,667
1967.....	27,544	749			
1968.....	28,163	744			
1969 <sup>3</sup> .....	29,659	717			
1970 <sup>3</sup> .....	31,166	692	<b>Canada, 1970.....</b>	<b>31,166</b>	<b>692</b>

<sup>1</sup> As at June 1; Yukon and Northwest Territories included from 1961 on. <sup>2</sup> As at Dec. 31; estimates for 1962 to 1968 for interns and residents are based on Statistics Canada data and those for other active civilian physicians are based on data contained in *List Catalogue*, Canadian Mailings Limited (Secombe House). <sup>3</sup> Compiled by the Department of National Health and Welfare from information supplied by Medical Marketing Systems Limited (Secombe House).

**Earnings.**—The average gross professional earnings of fee-practising physicians in 1969 were \$46,328, which was 8.3 p.c. higher than in 1968 and 79.1 p.c. higher than in 1961. The highest average gross earnings in 1969 were reported in Alberta, at \$52,383. In Ontario, Manitoba and Newfoundland they were above the national average and in the remaining provinces they ranged from \$45,010 in Saskatchewan to \$34,595 in the Yukon and Northwest Territories. Generally, throughout the nine-year period 1961-69, average gross earnings have been at a higher level in Newfoundland, Ontario and the western provinces than in Quebec and the Maritime Provinces.

The net returns to physicians, after deduction of the expenses of professional fee practice, reveal similar geographic patterns, as shown in Table 24. Net earnings for Canada as a whole averaged \$30,861 in 1969, 7.9 p.c. higher than in 1968 and 87.4 p.c. above the 1961 figure. The highest provincial average net income was reported by Newfoundland physicians at \$37,817, followed by Ontario physicians at \$33,903; the lowest average net income, \$15,807, was reported by the Yukon and Northwest Territories.

### 24.—Average Gross and Net Professional Incomes of Physicians and Surgeons, by Province, 1961-69

Province or Territory	1961	1963	1965	1967	1968	1969
<b>GROSS PROFESSIONAL INCOMES<sup>1</sup></b>						
	\$	\$	\$	\$	\$	\$
Newfoundland <sup>2</sup> .....	27,184	27,903	31,620	36,503	43,256	51,977
Prince Edward Island.....	20,001	23,413	25,596	28,720	32,584	37,501
Nova Scotia.....	23,242	23,455	27,486	30,391	35,820	41,116
New Brunswick.....	24,220	26,376	29,622	35,891	38,933	42,362
Quebec.....	22,118	25,748	29,010	33,455	36,187	39,058
Ontario.....	27,206	30,641	35,752	42,721	47,427	51,170
Manitoba <sup>3</sup> .....	29,072	28,769	32,037	36,657	40,083	49,255
Saskatchewan.....	27,103	35,657	37,474	41,150	41,546	45,010
Alberta.....	29,221	30,912	35,397	43,819	51,894	52,383
British Columbia.....	27,867	27,670	31,675	38,609	41,848	44,716
Yukon and Northwest Territories <sup>4</sup> .....	20,083	22,007	27,812	25,750	36,850	34,595
<b>Average for Canada.....</b>	<b>25,862</b>	<b>28,690</b>	<b>32,799</b>	<b>38,675</b>	<b>42,783</b>	<b>46,328</b>
<b>NET PROFESSIONAL INCOMES<sup>5</sup></b>						
	\$	\$	\$	\$	\$	\$
Newfoundland <sup>2</sup> .....	18,640	19,455	23,028	25,578	30,488	37,817
Prince Edward Island.....	13,119	15,777	17,835	20,716	22,636	22,760
Nova Scotia.....	16,070	15,839	19,146	21,480	24,642	29,880
New Brunswick.....	16,288	17,701	20,251	24,662	27,544	29,678
Quebec.....	14,454	16,696	20,532	23,133	25,112	27,233
Ontario.....	17,682	20,492	24,188	29,354	32,098	33,903
Manitoba <sup>3</sup> .....	15,829	18,178	19,681	23,229	26,108	31,678
Saskatchewan.....	15,843	21,625	23,530	24,697	25,175	27,657
Alberta.....	17,925	19,111	22,681	27,591	33,221	33,165
British Columbia.....	17,067	17,464	20,121	25,169	26,239	28,829
Yukon and Northwest Territories <sup>4</sup> .....	15,594	16,480	15,731	13,200	18,000	15,807
<b>Average for Canada.....</b>	<b>16,472</b>	<b>18,688</b>	<b>22,064</b>	<b>26,093</b>	<b>28,615</b>	<b>30,861</b>

<sup>1</sup> Includes wages and salaries for professional services.<sup>2</sup> Excludes physicians employed on a salaried basis

under the Cottage Hospital Medical Service and by subsidized voluntary prepayment plans. The estimated number of such excluded physicians in 1969 was 109.

<sup>3</sup> Excludes some physicians employed on a salaried basis in private group-practice. The estimated number of such excluded physicians in 1969 was 65.<sup>4</sup> Data to 1968 for the Yukon and Northwest Territories are posted for record only.<sup>5</sup> Includes net professional fees after deduct-

ing expenses of practice, and wages and salaries incidental to fee practice.

## PART II.—WELFARE AND SOCIAL SECURITY

Responsibility for social welfare is shared by all levels of government. Comprehensive income maintenance measures such as the Canada Pension Plan, old age security pensions, the guaranteed income supplement program, family allowances, youth allowances and unemployment insurance, where nation-wide co-ordination is required, are administered federally. The Federal Government gives substantial aid to the provinces in meeting the costs of public assistance and also provides services for special groups such as veterans, Indians, Eskimos and immigrants. The Department of National Health and Welfare is generally responsible for federal welfare matters, although the Departments of Veterans Affairs, Indian Affairs and Northern Development, and Manpower and Immigration operate programs for specific groups.

Administration of welfare services is primarily the responsibility of the provinces but the provision of services is often assumed by local authorities, generally with financial aid from the province.

Co-ordination in welfare matters between different levels of government has expanded considerably in recent years and in various ways. These include meetings of ministers, deputy ministers and other officials concerned with the development of programs and administrative arrangements. The agreements that have been reached provide, among other things, for the exchange of statistical and other information between the two levels of government and for the provision, at the request of the provinces, of a variety of consultative services. The three federal-provincial task forces appointed by the federal-provincial meeting of welfare ministers in January 1969 submitted their reports in January 1971.

A channel of communication between citizens groups and the Department of National Health and Welfare is provided by the National Council of Welfare. As reconstituted in January 1970, the Council now consists of 21 private citizens about half of whom have been selected from organizations of consumers of welfare services and the remainder from institutions involved, directly or indirectly, in providing welfare services. The Council is responsible for advising the Minister of National Health and Welfare on such matters related to welfare as it deems appropriate as well as to consider matters referred to it by the Minister.

## Section 1.—Federal Government Programs

### Subsection 1.—Canada Pension Plan

The Act establishing the Canada Pension Plan received Royal Assent on Apr. 3, 1966 and was proclaimed in force on May 5 of the same year. Collection of contributions commenced in January 1966, and in January 1967 the first benefits were paid in the form of retirement pensions. In February 1968, the first survivors' benefits were paid, and in February 1970 the first disability benefits were paid. The Plan enables millions of people to make financial provision for their retirement and to protect themselves and their dependants or survivors against loss of income in the event of their disability or death.

The Plan is universally applicable throughout Canada, except in the Province of Quebec where a comparable pension plan has been established. The Canada and Quebec Pension Plans, however, are closely co-ordinated and operate virtually as a single program. Together, they cover almost all members of the labour force in Canada. Benefit credits accrued under the Canada or Quebec Plans are portable throughout Canada. A contributor who may have worked for more than one employer during his lifetime or who may be self-employed for all or part of his working life will accumulate pension credits regardless of where he may work in Canada. Benefits under the Plan are payable to beneficiaries whether or not they live in Canada. Every contributor must have a social insurance number so that his pensionable earnings may be accurately recorded for benefit purposes.

The maximum pensionable earnings for a year were \$5,000 for both 1966 and 1967, \$5,100 for 1968, \$5,200 for 1969, \$5,300 for 1970 and \$5,400 for 1971. From 1972 to 1975, the figure of \$5,400 will be adjusted in line with changes in the Pension Index which, in turn, is based on the Consumer Price Index. Beginning in 1976, the maximum pensionable earnings for a year will be adjusted in accordance with changes in the Earnings Index to reflect changes in average wage and salary levels in Canada.

To participate in the Plan, a person must be between the ages of 18 and 70 and earn more than \$600 yearly as an employee, or at least \$800 if he is self-employed. In 1971, contributions are made on earnings between \$600 and \$5,400 a year in the case of both employees and self-employed persons. Employees contribute at the rate of 1.8 p.c. and a matching contribution is made by their employers; self-employed persons contribute at the rate of 3.6 p.c. No contributions are to be made by persons while they are receiving disability pensions. Although contributions are made on annual earnings between \$600 and the maxima referred to above, rates of benefit are calculated on total earnings up to that maximum. That is, while contributions are not paid on the first \$600 of annual earnings, that amount is nevertheless included in the calculation of benefits.



The earnings-related component of the benefit which a person is entitled to receive under the Canada Pension Plan is based on the contributor's average pensionable earnings. Before this average is calculated, however, all earnings are adjusted in line with the average of the maxima on pensionable earnings during the benefit year and the two preceding years. Thus, when a benefit first becomes payable, the earnings on which it is based are related to the maximum on pensionable earnings at that time rather than when the earnings were received.

Benefits are classified under three main headings: Retirement Pensions; Survivors' Benefits, consisting of a widow's pension, a disabled widower's pension, orphans' benefits, and a lump-sum death benefit; and Disability Benefits comprising pensions for disabled contributors and benefits for their dependent children.

From 1970 on, *Retirement Pensions* became payable to contributors who are 65 years of age or over provided that, if under age 70, they are retired from regular employment. For contributors who have reached age 70, retirement pensions are payable regardless of whether or not they are retired. They become payable at their full rate beginning in January 1976. This rate amounts to 25 p.c. of what the updated pensionable earnings of contributors have averaged since Jan. 1, 1966, or from age 18, whichever comes later.

Contributors who become eligible for retirement pensions prior to 1976 receive reduced amounts. In the calculation of retirement pensions that commence during this period, pensionable earnings are averaged over ten years or 120 months. The only exception occurs where a disability pension has been paid, in which case the time during which that pension was in pay is deducted from the ten years and the remaining period used for averaging purposes. In the calculation of retirement pensions that commence after 1975, provision is made to assist the contributor who may have had periods of low or no earnings during his contributory period. This is accomplished by dropping out the number of months during which contributions may have been made after age 65, either by using the pensionable earnings in those months in place of earlier periods of lesser or no earnings, or by dropping such pensionable earnings out of the calculation if they are less favourable to him. Also dropped out of the calculation are up to 15 p.c. of the number of months he could have contributed before age 65 and the earnings in an equal number of months, although the drop-out must not reduce the number of months for averaging purposes to fewer than 120.

A person under 70 years of age who is in receipt of a retirement pension must meet an earnings test. In 1971, the maximum annual remuneration from employment he may earn without affecting the amount of his pension is \$960. Should his yearly earnings exceed this figure, his pension is reduced as follows. When annual employment earnings are between \$960 and \$1,600, the reduction will equal 50 p.c. of the amount over \$960, or an amount of up to \$320 per year; if earnings exceed \$1,600, the amount deducted will be \$320 plus the actual amount earned over \$1,600. However, the amount of pension is not subject to reduction for any month in which the pensioner does not earn over \$80. At age 70, a contributor is entitled to receive the full amount of his retirement pension regardless of the amount of his earnings.

*Survivors' Benefits* became payable in February 1968. They are paid to or on behalf of the survivors of a deceased contributor who has made contributions for the present minimum qualifying period of three years for those whose benefits commence before 1975.

A woman who is widowed between ages 45 and 65 is entitled to a widow's pension consisting of the flat-rate payment plus  $37\frac{1}{2}$  p.c. of her husband's retirement pension. The flat-rate component is equal to \$25 multiplied by the ratio of the Pension Index for the year in which the contributor dies to the Pension Index for 1967. Thus, for 1971, the flat-rate component is \$27.06. Should her husband not be in receipt of a retirement pension at the time of his death, such a pension is calculated in prescribed manner for the purposes of computing the amount of the widow's pension. If a woman is widowed under age 45, the same pension is paid provided she has dependent or disabled children or is

herself disabled. If she does not meet any of these requirements, her pension is reduced by an amount equal to 1/120 for each month she is less than age 45 at the time of her husband's death. Accordingly, if a woman is widowed at age 35 or less, and has no dependent or disabled children and is not herself disabled, she will not receive a widow's pension until she reaches 65 years of age, unless she becomes disabled in the meantime.

A widow aged 65 or over receives a widow's pension equal to 60 p.c. of her husband's retirement pension, regardless of her age at the time her husband died or whether she was receiving a widow's pension before she became 65. Again, if her husband was not in receipt of a retirement pension at the time of his death, one is calculated in prescribed manner in order to compute the amount of the widow's pension. Women who receive widow's pensions may also have contributed to the Canada Pension Plan themselves and consequently may be entitled to retirement or disability pensions in their own right. In such cases, the widow's pension will be combined with the other pension, in accordance with a prescribed formula, but the combined total cannot exceed the maximum retirement pension payable under the Act.

Orphans' benefits are payable on behalf of a deceased contributor's unmarried dependent children. The rate for each of the first four children is equal to the flat-rate component of the widow's pension (\$27.06 for 1971); for more than four children the total benefit, which is divided equally among the children, is the sum of \$27.06 for each of four, and half of that amount for each child in excess of four. Benefits are payable until the child reaches age 18 or up to age 25 if he continues to attend school or university full time.

A disabled widower's pension is payable to a disabled widower if he was wholly or substantially dependent on his wife for financial support at the time of her death. The test of disability is the same as that for a person who claims a disability pension and the pension formula is the same as that for a widow age 45 or more.

When a contributor dies, a lump-sum death benefit equal to six times his monthly retirement pension is paid to his estate. This benefit is subject to a maximum of 10 p.c. of the maximum on pensionable earnings which, for 1971, would mean a payment not exceeding \$540. Should a contributor not be in receipt of a retirement pension at the time of his death, a calculation is made in prescribed manner for purposes of establishing the amount of the death benefit.

*Disability Pensions* became payable in 1970. A contributor is considered to be disabled if he has a physical or mental disability that is so severe and likely to continue so long that he is incapable regularly of pursuing any substantially gainful occupation. Disability pensions, plus benefits for the dependent children of disabled contributors, are available provided contributions have been made to the Plan for the present minimum qualifying period of five years. The amount of the pension consists of a flat-rate payment equal to the flat-rate component of a widow's pension plus 75 p.c. of what the contributor's monthly retirement pension would have been had he reached age 65 when his disability pension commenced. Benefits are payable on behalf of a disabled contributor's dependent children at the same rates and under essentially the same circumstances as the orphans' benefits.

All monthly benefits are adjusted upward annually if changes in the Pension Index warrant it. Benefits in payment in 1967 were increased by 2 p.c. effective January 1968, those in payment in 1968 were increased by 2 p.c. effective January 1969, those in payment in 1969 were increased by 2 p.c. effective January 1970, and those in payment in 1970 were increased by 2 p.c. effective January 1971.

Any contributor or beneficiary under the Plan has the right to appeal decisions with which he is dissatisfied. Appeals by employees and employers regarding coverage and contributions are first made to the Minister of National Revenue and, if the individual is not satisfied with the Minister's decision, he may appeal to the Pension Appeals Board whose decision is final. For self-employed persons, appeals with reference to the assessment of their earnings for Canada Pension Plan purposes are treated in the same way as

appeals under the Income Tax Act. With respect to benefits, there is a three-stage appeal procedure: first, to the Minister of National Health and Welfare; secondly, to a Review Committee; and thirdly, to the Pension Appeals Board whose decision is final.

The legislation provides for the investment of the funds that accrue from monthly contributions, less the estimated amounts required to pay benefits and administrative costs over a three-month period. These funds are made available to each province on the basis of the relationship between the contributions made to the Plan by and on behalf of residents of that province and the total contributions made to the Plan. Funds not borrowed by the provinces are invested in federal securities. The Canada Pension Plan is entirely self-supporting in that all benefits and all costs incurred in the administration of the program are financed solely from the contributions made by employees, employers and self-employed persons and the interest earned from the investment of funds.

An Advisory Committee representing employers, employees, self-employed persons and the public, which was established in 1967, reviews from time to time the operations of the Plan, the state of the investment fund and the adequacy of coverage and benefits, and reports to the Minister of National Health and Welfare. In addition, a report on its activities is included in the annual report on the Plan. The legislation authorizes arrangements to be made with other countries to achieve as full coverage of persons in the labour force in Canada as is possible and to ensure the portability of pension credits between Canada and the countries concerned.

The Minister of National Health and Welfare is responsible for the administration of all parts of the program except coverage and the collection of contributions which come under the jurisdiction of the Minister of National Revenue. The Unemployment Insurance Commission is responsible for the assignment of social insurance numbers and for the maintenance of the Central Index. The Department of Finance is responsible for the administration of the Canada Pension Plan Account and the Canada Pension Plan Investment Fund. The Department of Supply and Services gives assistance to the Department of National Health and Welfare in the operation of the electronic data processing service which is required to maintain the records of earnings of contributors and to calculate benefits payable under the Plan. The Chief Actuary, Department of Insurance, is responsible for the preparation of reports on the future financial progress of the Plan and on the effect on the Fund of proposed amendments to the Plan.

The Canada Pension Plan Administration of the Department of National Health and Welfare consists of a head office establishment in Ottawa, a network of 38 district offices located in the major population centres in Canada outside the Province of Quebec, and 104 local offices, the latter on a part-time basis.

### 1.—Canada Pension Plan Account, Years Ended Mar. 31, 1966-71

NOTE.—Due to rounding, figures may not add to totals shown.

(Millions of dollars)

Year Ended Mar. 31—	Revenue				Net Expenditure			Excess of Revenue	Balance in Account
	Contri- butions	Interest on Invest- ments	Other	Total	Benefits	Admini- stration	Total		
1966.....	94.9	—	—	94.9	—	5.5	5.5	89.4	89.4
1967.....	587.2	11.0	1.7	599.9	—	8.4	8.4	591.5	680.9
1968.....	640.2	42.2	2.2	684.7	1.3	11.5	12.8	671.9	1,352.8
1969.....	697.6	84.4	3.0	785.0	15.6	14.5	30.0	755.0	2,107.8
1970.....	745.6	139.7	4.2	889.6	47.3	17.7	65.1	824.5	2,932.3
1971.....	812.9	202.7	4.5	1,020.1	89.2	19.5	108.7	911.3	3,843.6



## 2.—Canada Pension Plan Investment Fund Investments, by Province, Years Ended Mar. 31, 1966-71

NOTE.—Due to rounding, figures may not add to totals shown.  
(Millions of dollars)

Securities of or Guaranteed by—	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71	Total Invest- ments
	INVESTMENTS MADE IN PERIOD						
Newfoundland.....	0.7	11.0	12.0	14.2	15.6	16.8	70.3
Prince Edward Island.....	0.1	1.9	2.3	2.9	3.2	3.5	13.9
Nova Scotia.....	1.2	21.4	25.2	29.2	31.6	34.0	142.7
New Brunswick.....	1.0	16.7	19.3	21.8	24.2	25.8	108.8
Quebec.....	—	0.4	1.9	2.4	3.1	5.1	12.8
Ontario.....	20.1	332.6	375.9	412.0	445.8	476.0	2,062.4
Manitoba.....	2.1	34.9	39.4	42.3	47.7	51.5	217.8
Saskatchewan.....	1.4	24.5	29.7	35.9	40.4	42.9	174.7
Alberta.....	3.1	51.1	59.2	68.4	77.1	82.3	341.1
British Columbia.....	5.1	84.4	96.6	107.5	117.2	125.1	535.9
Federal Government.....	0.1	1.8	3.8	5.6	4.1	5.4	20.8
<b>Totals, All Jurisdictions....</b>	<b>34.9</b>	<b>590.7</b>	<b>665.3</b>	<b>742.2</b>	<b>809.8</b>	<b>868.5</b>	<b>3,701.3</b>
	BALANCE IN FUND AT END OF PERIOD						
<b>Totals, All Jurisdictions....</b>	<b>34.9</b>	<b>615.5</b>	<b>1,280.8</b>	<b>2,022.9</b>	<b>2,832.7</b>	<b>3,701.3</b>	<b>...</b>

## 3.—Benefits Paid under the Canada Pension Plan, by Type of Benefit and by Province, March 1971

Province or Territory	Retire- ment Pensions	Disability Benefits		Survivors' Benefits				Com- bined Pensions	All Benefits
		Disability Pensions	Children's Benefits	Death Benefits	Widows' Pensions	Orphans' Benefits	Disabled Widowers' Pensions		
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland..	2,825	79	116	35	700	1,288	—	1	5,042
Prince Edward Island.....	990	19	29	12	207	355	—	—	1,612
Nova Scotia....	7,667	290	302	79	1,910	2,449	2	8	12,707
New Brunswick..	5,755	149	146	76	1,364	1,931	—	4	9,425
Quebec.....	662	18	8	10	267	373	1	—	1,339
Ontario.....	89,972	1,582	979	932	19,223	18,615	9	125	131,437
Manitoba.....	12,801	254	158	109	2,286	2,200	1	17	17,916
Saskatchewan....	9,849	206	228	100	2,089	2,454	4	5	14,935
Alberta.....	14,661	223	181	187	3,048	3,851	4	14	22,169
British Columbia.....	26,314	416	199	241	4,645	4,996	4	26	36,841
Yukon Territory.....	64	—	—	5	26	37	—	—	132
Northwest Territories....	41	—	—	1	14	29	—	—	85
<b>Totals, All Areas.</b>	<b>171,601</b>	<b>3,236</b>	<b>2,346</b>	<b>1,787</b>	<b>35,779</b>	<b>38,666</b>	<b>25</b>	<b>200</b>	<b>253,640</b>

## Subsection 2.—Old Age Security and Guaranteed Income Supplement

**Old Age Security.**—Under the Old Age Security Act of 1951, as amended, the Federal Government pays a monthly pension to all persons aged 65 or over who meet the necessary residence qualifications. Until 1966 the pension was payable to those aged 70 or over but an annual one-year reduction in pensionable age from 70 to 65 was completed in 1970. Prior to 1968 the pension amounted to \$75 a month but in 1968, 1969 and 1970, the amount was adjusted in line with changes in the Pension Index developed for the Canada Pension

Plan (see p. 338); it reached \$79.58 a month in 1970. An amendment to the Act, passed in December 1970, set the basic pension at a flat \$80 a month, as from January 1971. However, for pensioners in receipt of the guaranteed income supplement (see below), the old age security pension together with the supplement will be subject to annual escalation ranging from 1 p.c. to a maximum of 2 p.c. to reflect price rises.

The old age security pension is payable to a person of attained age who has resided in Canada for ten years immediately preceding the approval of his application for the pension. Any gaps in the ten-year period may be offset if the applicant had been present in Canada in earlier years for periods of time after reaching age 18 equal in total to three times the length of the gaps; in this case, however, the applicant must also have resided in Canada for one year immediately before the month in which his application for pension may be approved. The pension is also payable to persons of attained age who have left Canada before reaching that age but who have had 40 years of residence in Canada since age 18. A pensioner may absent himself from Canada and continue to receive payments. If he has lived in Canada for 25 years since his 21st birthday, payment outside of Canada may continue indefinitely; if not, payment is continued for six months, in addition to the month of departure, and is then suspended, to be resumed only with the month in which he returns to Canada.

The program is administered by the Department of National Health and Welfare through regional offices located in each provincial capital, to which application is made for pension. The regional office in Edmonton administers accounts for and receives applications from residents of the Yukon and the Northwest Territories. The old age security plan is financed through a 3-p.c. sales tax, a 3-p.c. tax on corporation income and, subject to a limit of \$240 a year, a 4-p.c. tax on taxable personal income. The revenues from these sources are paid into a separate fund called the Old Age Security Fund, from which are paid the old age security pensions and, from Jan. 1, 1967, benefits under the guaranteed income supplement program.

**Guaranteed Income Supplement.**—A 1966 amendment to the Old Age Security Act provides for the payment of a monthly guaranteed income supplement to old age security pensioners who have little or no income other than the pension. The program commenced on Jan. 1, 1967. Beginning at that date, the maximum supplement was \$30 a month; after 1967, it was 40 p.c. of the amount of the old age security pension. With the latter pension being escalated in 1968, 1969 and 1970, the maximum supplement reached \$31.83 a month in 1970. An amendment passed in December 1970 raised the maximum monthly supplement to \$55 for a single pensioner and to \$95 for a married couple, both of whom are pensioners. Thus, the old age security pension and guaranteed income supplement comprise a guaranteed annual income of \$1,620 for a single person and \$3,060 for a married couple when both are pensioners. In future years, the guaranteed income supplement together with the old age security pension paid to those recipients may be escalated from 1 p.c. to 2 p.c. based on increases in the cost of living.

Pensioners with income in addition to their old age security pension may receive partial benefits. The maximum supplement is reduced by \$1 a month for every full \$2 a month of income over and above the old age security pension and any supplement that may have been received. Income for this purpose is the same as that computed in accordance with the Income Tax Act. In the case of a married couple, each is considered to have one half of their combined income. Where one spouse will not be receiving an old age security pension at any time in the current year, six times the amount of the monthly old age security pension is deducted from one half of the combined income in calculating the income of the pensioner for guaranteed income supplement purposes.

Payments will not be made to married couples unless both spouses submit returns. However, in order to prevent undue hardship when no statement of income is obtainable from one spouse, the other, in certain circumstances, may be deemed to be single for purposes of determining income. Furthermore, although marital status is determined as at Mar. 31

of the year preceding the benefit year, even if this status should change in the benefit year, a special provision allows a person to be deemed either married or single in the preceding year.

If a pensioner who is in receipt of a supplement leaves Canada, the supplement will be paid for the month of departure and for six further months. Payment will then be discontinued until his return.

The guaranteed income supplement program is administered in conjunction with the old age security pension program. An application for the supplement is sent to each person when he begins to receive the old age security pension and subsequently at the beginning of each calendar year. Entitlement is re-assessed each year on the basis of the pensioner's income in the preceding year.

#### 4.—Old Age Security and Guaranteed Income Supplement Statistics, by Province, Year Ended Mar. 31, 1971 with Totals for 1967-71

Province or Territory	Old Age Security		Guaranteed Income Supplement	
	Pensioners in March	Net Pensions Paid During Fiscal Year	Pensioners in March	Net Supplements Paid During Fiscal Year
	No.	\$	No.	\$
Newfoundland.....	32,129	30,633,179	25,914	9,077,141
Prince Edward Island.....	12,316	11,810,483	8,884	2,924,997
Nova Scotia.....	71,565	67,995,408	44,893	14,943,475
New Brunswick.....	53,956	51,590,554	33,889	11,137,999
Quebec.....	409,038	384,222,746	230,492	80,259,161
Ontario.....	633,696	602,581,082	265,877	78,524,095
Manitoba.....	95,542	90,134,927	49,356	16,379,446
Saskatchewan.....	93,797	89,122,205	48,436	15,595,408
Alberta.....	116,359	107,638,661	60,089	22,266,374
British Columbia.....	200,419	190,241,167	91,589	28,527,967
Yukon Territory.....	477	455,731	271	100,652
Northwest Territories.....	834	792,989	702	268,656
<b>Canada.....</b>	<b>1971</b>	<b>1,627,219,132</b>	<b>860,392</b>	<b>280,005,371</b>
	<b>1970</b>	<b>1,670,639</b>	<b>812,335</b>	<b>263,478,628</b>
	<b>1969</b>	<b>1,504,862</b>	<b>775,034</b>	<b>244,470,268</b>
	<b>1968</b>	<b>1,366,210</b>	<b>714,648</b>	<b>234,835,151</b>
	<b>1967</b>	<b>1,229,561</b>	<b>505,240</b>	<b>39,597,478<sup>1</sup></b>

<sup>1</sup> Three months; guaranteed income supplement program commenced Jan. 1, 1967.

#### 5.—Numbers and Percentages of Old Age Security (OAS) Pensioners with or without Guaranteed Income Supplement (GIS), by Province, March 1971

Province or Territory	Numbers of OAS Pensioners			Percentages of OAS Pensioners		
	Without GIS	With Partial GIS	With Full GIS	Without GIS	With Partial GIS	With Full GIS
Newfoundland.....	6,215	5,889	20,025	19.34	18.33	62.33
Prince Edward Island.....	3,432	3,625	5,259	27.87	29.43	42.70
Nova Scotia.....	26,672	18,127	26,766	37.27	25.33	37.40
New Brunswick.....	20,067	12,752	21,137	37.19	23.63	39.18
Quebec.....	178,546	80,471	150,021	43.65	19.67	36.68
Ontario.....	367,819	144,934	120,943	58.04	22.87	19.09
Manitoba.....	46,186	24,194	25,162	48.34	25.32	26.34
Saskatchewan.....	45,361	23,540	24,896	48.36	25.10	26.54
Alberta.....	56,270	27,476	32,613	43.36	23.61	28.03
British Columbia.....	108,830	46,104	45,485	54.30	23.00	22.70
Yukon Territory.....	206	60	211	43.19	12.58	44.23
Northwest Territories.....	132	104	598	15.83	12.47	71.70
<b>Canada.....</b>	<b>859,736</b>	<b>387,276</b>	<b>473,116</b>	<b>49.98</b>	<b>22.51</b>	<b>27.51</b>



## Subsection 3.—Family Allowances

The Family Allowances Act of 1944 assists in providing equal opportunity for all Canadian children. The allowances do not involve a means test and are paid from the federal Consolidated Revenue Fund. They do not constitute taxable income but there is a smaller income tax exemption for children eligible for allowances.

Allowances are payable in respect of every child under age 16 who was born in Canada, or who has been a resident of the country for one year, or whose father or mother has been domiciled in Canada from a date three years immediately prior to the date of birth of the child. Payment is made by cheque each month, normally to the mother, although any person who substantially maintains the child may be paid the allowance on his behalf. Allowances are paid at the monthly rate of \$6 for each child under 10 years of age and \$8 for each child age 10 or over but under 16 years. If the allowances are not spent for the purposes outlined in the Act, payment may be discontinued or made to some other person or agency on behalf of the child. Allowances are not payable for any child who fails to comply with provincial school attendance legislation, who ceases to be maintained by a parent or who ceases to be a resident of Canada, or on behalf of a girl who is married and under age 16.

The program is administered by the Department of National Health and Welfare through regional offices located in each provincial capital. The Regional Director located at Edmonton also administers the accounts of residents in the Yukon Territory and Northwest Territories.

The Federal Government pays family assistance, at the rates applicable for family allowances, for each child under 16 years of age resident in Canada and supported by an immigrant who has landed for permanent residence in Canada, or by a Canadian returned to Canada to reside permanently. The assistance, which is payable monthly for the first year of the child's residence in Canada, is intended to bridge the gap until the child becomes eligible for family allowances. The eligibility requirements, other than that relating to residence, are the same for family assistance as for family allowances.

The Province of Quebec introduced its own family allowances program, supplementing the federal scheme, under legislation enacted in 1967 (see p. 354), and Newfoundland in 1966 introduced a program called the Parents' Supplement (Schooling Allowance), under which payments are made for children attending school (see p. 354).

**6.—Family Allowances Statistics, by Province, Year Ended Mar. 31, 1971 with Totals for 1967-71**

Province or Territory	Families Receiving Allowances in March	Children for Whom Allowances Paid in March	Average Number of Children per Family in March	Average Allowances <sup>1</sup>		Net Total Allowances Paid during Fiscal Year
				Per Family	Per Child	
	No.	No.	No.	\$	\$	\$
Newfoundland.....	76,405	208,804	2.73	18.46	6.76	16,942,945
Prince Edward Island.....	14,577	37,755	2.59	17.67	6.82	3,091,849
Nova Scotia.....	110,278	256,085	2.32	15.86	6.84	21,016,284
New Brunswick.....	87,622	216,827	2.47	16.90	6.84	17,809,571
Quebec.....	843,472	1,917,469	2.27	15.62	6.88	199,083,996
Ontario.....	1,087,721	2,370,500	2.18	14.71	6.75	191,449,526
Manitoba.....	134,338	306,426	2.28	15.47	6.79	24,977,643
Saskatchewan.....	125,397	301,674	2.40	16.36	6.82	24,997,113
Alberta.....	237,198	546,520	2.30	15.63	6.80	44,295,930
British Columbia.....	298,894	641,546	2.15	14.78	6.87	52,514,320
Yukon Territory.....	3,012	5,544	1.84	14.93	8.11	570,974
Northwest Territories.....	5,509	15,329	2.78	18.53	6.67	1,127,670
<b>Canada..... 1971</b>	<b>3,024,423</b>	<b>6,824,479</b>	<b>2.26</b>	<b>15.37</b>	<b>6.80</b>	<b>557,877,821</b>
1970	2,977,556	6,865,302	2.31	15.68	6.79	560,049,848
1969	2,937,054	6,882,900	2.34	15.93	6.81	560,186,052
1968	2,888,101	6,901,486	2.39	16.19	6.77	558,774,455
1967	2,833,941	6,882,874	2.43	16.42	6.76	555,794,947

<sup>1</sup> Based on gross payment for March.

## Subsection 4.—Youth Allowances

Legislation providing for a program of youth allowances became effective Sept. 1, 1964. The Federal Government does not provide youth allowances in Quebec, which has had its own program, called Schooling Allowances, since 1961. With the introduction of the federal scheme, Quebec agreed to make certain changes in its schooling allowances program so that it would be comparable to the federal measure; since then, that province has been compensated by a tax abatement adjusted to equal the amount that the Federal Government would otherwise have paid in allowances to Quebec residents. The federal youth allowances and the Quebec schooling allowances programs cover all eligible young people in Canada.

Under the federal program, monthly allowances of \$10 are payable in respect of all dependent children aged 16 and 17 who are receiving full-time educational training or are precluded from doing so by reason of physical or mental infirmity. Both the parent or guardian and the child must normally be physically present and living in a province other than Quebec. The allowance is not payable to a parent who resides in Quebec or outside Canada, regardless of where his child may be attending school. However, a child may attend school in Quebec or outside Canada, or, if disabled, receive care or training in Quebec or outside Canada and still be considered eligible, on the basis that he is a resident of a province other than Quebec but is temporarily absent.

Allowances normally commence with the month following that in which family allowances cease and continue until the school year terminates. They are paid retroactively for the summer months when the child returns to school at the commencement of the new school year, although allowances for a disabled child not attending school are payable continuously throughout the year. Should a student leave school, leave the country permanently, cease to be maintained, take up residence in Quebec, or die, the allowance ceases. Otherwise, the youth allowance continues until the end of the month in which the young person reaches age 18. Youth allowances are considered not to be income for any purpose of the Income Tax Act.

The program is administered by the Department of National Health and Welfare. The national director of the family allowances and old age security programs is also responsible for administering youth allowances, assisted by regional directors located in each of the provincial capitals other than Quebec City. The costs of youth allowances are met from the Consolidated Revenue Fund.

## 7.—Youth Allowances Statistics, by Province, Year Ended Mar. 31, 1971 with Totals for 1967-71

Province or Territory	Youths for Whom Allowances Paid in March			Net Total Allowances Paid during Fiscal Year
	Attending School Full-Time	Having Physical or Mental Infirmity	Total Youths	
	No.	No.	No.	\$
Newfoundland.....	18,517	165	18,682	2,060,940
Prince Edward Island.....	3,836	12	3,848	440,868
Nova Scotia.....	27,596	120	27,716	3,173,493
New Brunswick.....	23,354	95	23,449	2,676,410
Ontario.....	243,972	1,070	245,042	28,054,017
Manitoba.....	32,771	41	32,812	3,722,854
Saskatchewan.....	34,017	77	34,094	3,916,165
Alberta.....	54,602	141	54,743	6,217,312
British Columbia.....	67,453	179	67,632	7,656,134
Yukon Territory.....	402	—	402	41,366
Northwest Territories.....	537	3	540	60,540
<b>Canada.....</b>	<b>1971</b>	<b>1,903</b>	<b>508,960</b>	<b>58,020,099</b>
	<b>1970</b>	<b>2,076</b>	<b>484,476</b>	<b>55,101,899</b>
	<b>1969</b>	<b>2,330</b>	<b>462,385</b>	<b>52,457,272</b>
	<b>1968</b>	<b>2,514</b>	<b>434,565</b>	<b>49,426,980</b>
	<b>1967</b>	<b>2,530</b>	<b>412,121</b>	<b>47,395,633</b>

### **Subsection 5.—International Welfare**

Canada is actively involved in the social development activities of the United Nations and its specialized agencies and of various other international organizations. At the United Nations, Canada is represented on the Commission for Social Development, and is a member of the Executive Board of the United Nations Children's Fund. The Canadian Government, together with provincial governments and agencies, participates actively in the work of the International Council on Social Welfare, the International Social Security Association, and other international agencies concerned with the social aspects of development.

The Department of National Health and Welfare, through the programs of the Canadian International Development Agency, supports a number of social development projects in developing countries, provides advisers for service abroad, and arranges social development training for foreign students recommended by their governments. The Department, which works closely with several Canadian voluntary organizations engaged in social development, also supplies the necessary technical services to the bilateral and multilateral aid programs in this sector.

Canada is in the course of negotiating reciprocal social security agreements with a number of European countries. Canadian agencies employed in social security participate in the program of the International Social Security Association and the social security program of the International Labour Organization. For some years, Canada has been represented, as an observer, at the meetings of the Inter-American Social Security Association.

## **Section 2.—Federal-Provincial Programs**

### **Subsection 1.—Canada Assistance Plan**

The Canada Assistance Plan was enacted in 1966 as a comprehensive public assistance measure to complement other income security measures. It provides, under agreements with the provinces, for federal contributions of 50 p.c. of the costs of assistance to persons in need and of the costs of certain welfare services. The plan has largely replaced the Unemployment Assistance Act, 1956, although the latter continues in effect in some provinces for an interim period with respect to certain programs that utilize a means test, that are being phased out but that are not covered under the Canada Assistance Plan. All provinces had signed agreements under the plan by the end of August 1967, and the Yukon Territory signed in December 1969. The arrangements for contracting out of certain shared-cost programs that were introduced in 1965 under the Established Programs (Interim Arrangements) Act are applied to Quebec's agreement. It is provided that the provinces may discontinue their programs of blind persons allowances and disabled persons allowances and instead give aid under their general programs with costs shared under the plan.

The plan extends federal sharing to include the following costs, which were not shared under the Unemployment Assistance Act: assistance to needy mothers with dependent children, maintenance of children in the care of provincially approved child welfare agencies, health care services to needy persons, and the extension of welfare services to prevent or remove causes of dependency or to assist recipients in achieving self-support. The only eligibility requirement specified is that of need, which is determined through an assessment of budgetary requirements as well as of income and resources. A province must not require previous residence as a condition of eligibility for assistance or for continued assistance; rates of assistance and eligibility requirements are set by the province so that they may be adjusted to local conditions and the needs of special groups; and the provinces must establish procedures for appeal from decisions that relate to the provision of assistance.

The Federal Government reimburses the provinces for 50 p.c. of the cost of assistance provided to persons in need and for 50 p.c. of certain costs of improving or extending welfare services. "Assistance" includes any form of aid to or on behalf of persons in need for the



purpose of providing basic requirements such as food, shelter and clothing; items necessary for the safety, well-being or rehabilitation of a person in need, or for a handicapped person; care in homes for special care such as a home for the aged, a nursing home or a welfare institution for children; travel and transportation; funerals and burials; health care services; welfare services purchased by or at the request of provincially approved agencies; and comfort allowances for inmates of institutions.

The cost of improving and extending welfare services may be calculated either (1) as the amount by which the cost of providing welfare services exceeds that of the period from Apr. 1, 1964 to Mar. 31, 1965 or (2) as the cost of employing persons who are engaged wholly or mainly in the performance of welfare service functions and who are employed in positions filled after Mar. 31, 1965. Included for sharable purposes are the costs of salaries and employee benefits, travel, research, consultation, fees for conferences and seminars, and certain costs of staff training. The sharing of cost of work activity projects that prepare persons for employment and the extension of provincial welfare services to Indians on reserves, on Crown lands or in unorganized territory are governed by special agreements.

The federal share of costs under the Unemployment Assistance Act amounted to \$14,100,000 during the year ended Mar. 31, 1971. This amount includes \$13,300,000 to Quebec under the Established Programs (Interim Arrangements) Act.

#### 8.—Federal Share of Canada Assistance Plan Costs, by Province, Years Ended Mar. 31, 1970 and 1971

NOTE.—Includes costs of public assistance payments, child welfare maintenance, health care and extensions and improvements in welfare services and also payments made for claims received during the fiscal year for expenditures made in the previous fiscal year.

Province	1969-70	1970-71	Province or Territory	1969-70	1970-71
	\$	\$		\$	\$
Newfoundland.....	20,288,580	21,966,470	Saskatchewan.....	17,233,414	20,621,117
Prince Edward Island....	3,292,523	3,766,197	Alberta.....	31,334,876	39,191,982
Nova Scotia.....	15,245,837	16,743,286	British Columbia.....	43,086,262	68,207,041
New Brunswick.....	11,795,292	15,242,214	Yukon Territory.....	152,889	771,248
Quebec.....	1	1			
Ontario.....	131,838,661	176,163,385			
Manitoba.....	19,260,412	28,187,315	<b>Totals.....</b>	<b>293,528,746</b>	<b>390,860,255</b>

<sup>1</sup> Compensation is made to Quebec under the terms of the Established Programs (Interim Arrangements) Act. Payments in 1969-70 and 1970-71 amounted to \$156,600,000 and \$203,300,000, respectively.

#### Subsection 2.—Blind and Disabled Persons Allowances

Federal reimbursement to the provinces for assistance to blind persons and persons permanently and totally disabled, aged 18 or over, is provided for under the Blind Persons Act, 1951, as amended, and the Disabled Persons Act, 1954, as amended. To be eligible for an allowance under either of these Acts, an applicant must meet the 10-year residence requirement and the income requirements. Total income, including the allowance, may not exceed \$1,260 a year for an unmarried person, \$2,220 a year for a married couple or \$2,580 a year for a married couple when the spouse is blind within the meaning of the Blind Persons Act. Under the Blind Persons Act, total income, including the allowance, may not exceed \$1,500 a year for an unmarried person, \$1,980 a year for a person with no spouse but with one or more dependent children, \$2,580 for a married couple and \$2,700 a year for a married couple when the spouse is also blind.

The federal contribution is 50 p.c. of \$75 a month or the allowance paid, whichever is less, for disabled persons allowances, and 75 p.c. of \$75 a month or the allowance paid, whichever is less, for blind persons allowances.

Effective Apr. 1, 1965, Quebec received payment under the terms of the Established Programs (Interim Arrangements) Act.

Under the terms of the Canada Assistance Plan, a province may elect to aid needy persons in these categories under a general assistance program with costs shared under the plan (see p. 347). By mid-1971, Newfoundland, Prince Edward Island, Nova Scotia, Quebec, Ontario, Saskatchewan and Alberta had discontinued receipt of applications for disabled persons allowances, and four of these—Quebec, Ontario, Saskatchewan and Alberta—had also discontinued receipt of applications for blind persons allowances.

**9.—Statistics of Blind and Disabled Persons Allowances, by Province, Years Ended Mar. 31, 1970 and 1971**

Province or Territory and Year Ended—	Allowances for the Blind			Allowances for Disabled Persons		
	Recipients in Month of March	Average Monthly Allowance	Federal Contribution during Year	Recipients in Month of March	Average Monthly Allowance	Federal Contribution during Year
	No.	\$	\$	No.	\$	\$
Newfoundland.....1971	374	73.20	247,457	43	60.59	17,150
.....1970	374	73.43	261,979	49	62.29	21,936
Prince Edward Island.....1971	50	74.46	33,159	28	69.28	13,008
.....1970	50	73.62	37,495	38	70.66	17,501
Nova Scotia.....1971	511	72.71	339,401	494	70.38	223,202
.....1970	524	73.45	370,107	591	70.08	381,865
New Brunswick.....1971	424	73.75	289,364	2,068	74.40	957,365
.....1970	448	73.96	314,336	2,215	74.41	1,005,912
Ontario.....1971	183	48.08	81,266	445	66.19	213,973
.....1970	258	49.95	135,975	901	62.97	424,593
Manitoba.....1971	169	70.19	129,469	463	72.19	282,817
.....1970	255	72.00	174,388	1,331	73.51	608,920
Saskatchewan.....1971	54	74.18	38,991	91	70.21	39,512
.....1970	68	73.19	51,482	119	69.43	57,539
Alberta.....1971	234	73.61	164,573	1,479	73.49	677,905
.....1970	264	72.30	192,338	1,596	73.13	751,490
British Columbia.....1971	432	73.89	286,126	2,580	73.85	1,126,363
.....1970	430	74.00	292,557	2,533	73.63	1,116,237
Yukon Territory.....1971	4	75.00	2,700	6	75.00	2,250
.....1970	4	75.00	2,700	5	75.00	1,725
Northwest Territories.....1971	26	75.00	19,125	35	74.17	15,282
.....1970	28	75.00	20,085	34	74.33	14,676
<b>Canada<sup>1</sup>.....1971</b>	<b>2,461</b>	<b>..</b>	<b>1,631,630</b>	<b>7,732</b>	<b>..</b>	<b>3,568,829</b>
<b>.....1970</b>	<b>2,703</b>	<b>72.13</b>	<b>1,853,442</b>	<b>9,412</b>	<b>73.53</b>	<b>4,402,395</b>

<sup>1</sup> Excludes Quebec. Effective Jan. 1, 1965 no payments were made to Quebec under these programs; instead, compensation was provided under the Established Programs (Interim Arrangements) Act. If payments had been made under these programs, however, total amounts for 1969-70 would have been increased as follows: allowances for the blind—\$1,442,995; and allowances for disabled persons—\$7,492,756. Data for 1970-71 not available.

**Subsection 3.—Fitness and Amateur Sport Program**

The Fitness and Amateur Sport Program was inaugurated in 1961 to increase the number of participants at all levels of competitive and non-competitive physical recreation and amateur sport activity ranging from day camps to the Canada Games and the Olympic Games; to help provide the participants with the skills, the means and the opportunity to benefit from recreation; and to help make available to all citizens the facilities and leadership to participate freely in recreational activities of their choice. These objectives are predicated on the assumption that every Canadian should develop a level of fitness sufficient to contribute positively to his physical and mental health and that Canadian athletes should develop a level of performance in national and international competitions which will contribute to national unity and international prestige.

Under the Fitness and Amateur Sport Act, 1961, up to \$5,000,000 a year may be expended to encourage, promote and develop fitness and amateur sport in Canada. A

National Advisory Council on Fitness and Amateur Sport, consisting of not more than 30 members appointed by the Governor in Council with at least one from each province, has been set up to consider problems connected with such activity and to advise the Minister of National Health and Welfare thereon.

After consideration of the report of the Task Force on Sports for Canadians, the findings of the Montmorency Conference on Leisure, the recommendations made by the National Advisory Council on Fitness and Amateur Sport, and the conclusions of an internal departmental study, the Minister proposed, in March 1970, a new government sports policy for Canadians. Advocating the benefits of mass participation and the inculcation of sports and recreation into the Canadian culture, the policy aims primarily at reinforcing and increasing the administrative strength of Canadian sports and recreation agencies by providing them with administrative, financial and other professional assistance. The Department operates certain projects of its own and also provides grants for specific projects, all intended to facilitate the development of resources and motivate participation by all Canadians.

The federal program for 1970-71 concentrates on (1) grants and support to national fitness and sport organizations to improve the standards of administration, coaching and instruction, to increase the rate of participation in physical recreation and to provide aid to the holding of competitions (\$2,000,000); (2) promotion and support of special projects including the Arctic Games, the Canada Games and the Canada Fitness Award, and assistance in the holding of sports events of nation-wide interest (\$1,400,000); (3) planning, training, research and communications in support of increased participation in physical recreation by all Canadians.

#### **Subsection 4.—National Welfare Grant Program**

The National Welfare Grant Program was established in 1962 to help develop and strengthen welfare services in Canada. Under the program project grants are provided to provincial and municipal welfare departments, non-governmental welfare agencies, citizen organizations and universities. Fellowships are provided to individuals seeking advanced training in social work. The variety of provisions within the program along with its associated consultative services allows it to operate as a flexible instrument in the development of welfare services and to give major emphasis to experimental activities in the welfare field. The allotment for the year ended Mar. 31, 1971 was \$2,500,000.

General welfare bursary training and staff development grants are available to provinces on a shared-cost basis, with the other provisions of the program being administered and financed entirely by the Federal Government. Demonstration, research and social action projects in a wide range of subject areas are eligible for grants, as are developmental projects related to welfare manpower. Fellowships are available for study at Canadian and foreign universities and grants are available to assist Canadian schools of social work with teaching and field instruction costs.

With the advent of the Canada Assistance Plan, increasing attention has been given to experimental activities under the National Welfare Grants program to encourage innovative approaches to the solution of social problems and the provision of welfare services.

Effective Apr. 1, 1967, a mental retardation grant was established for a five-year period, a portion of which is administered in conjunction with the National Welfare Grant program. Support is extended to research and demonstration projects designed to expand knowledge and to apply that knowledge to the provision of services and to preventive programs in that field.

Expenditures under the National Welfare Grant program for the year ended Mar. 31, 1971 totalled \$2,443,551, and under the Mental Retardation Grant \$225,717. Of the former, \$1,100,217 was expended on demonstration projects, \$394,364 on research projects,



\$387,835 on teaching and field instruction, \$66,816 on scholarships, \$89,102 on fellowships, \$235,136 on national agency projects and \$170,081 on general welfare projects including the provincially administered bursary and staff development programs.

**10.—Amounts Expended under the National Welfare Grant Program,  
Year Ended Mar. 31, 1971**

Province, Territory or Agency	Welfare Services Plan <sup>1</sup>	Demon- stration Projects <sup>2</sup>	Welfare Research <sup>3</sup>	Teaching and Field Instruc- tion <sup>4</sup>	Welfare Scholar- ships <sup>5</sup>	Welfare Fellow- ships <sup>6</sup>	National Agency Projects	Totals
	\$	\$	\$	\$	\$	\$	\$	\$
Newfoundland.....	6,699	—	—	8,713	—	—	—	15,412
Nova Scotia.....	11,904	143,095	4,230	30,022	1,957	—	—	191,208
Prince Edward Island.....	8,190	14,530	—	—	1,861	1,983	—	26,564
New Brunswick.....	13,630	17,700	—	—	—	—	—	31,330
Quebec.....	—	217,774	247,253	—	17,447	21,605	—	504,079
Ontario.....	61,520	218,316	61,653	186,583	29,634	52,559	—	610,265
Manitoba.....	—	116,715	27,142	55,002	5,373	8,455	—	212,687
Saskatchewan.....	3,033	83,130	—	9,445	4,205	—	—	99,813
Alberta.....	8,167	63,383	—	43,104	2,505	4,500	—	121,659
British Columbia.....	12,250	125,752	45,841	54,966	3,834	—	—	242,643
Yukon Territory.....	—	—	—	—	—	—	—	—
Northwest Territories.....	44,688	—	—	—	—	—	—	44,688
National Voluntary Welfare Agencies.....	—	99,822	8,245	—	—	—	235,136	343,203
<b>Totals.....</b>	<b>170,081</b>	<b>1,100,217</b>	<b>394,364</b>	<b>387,835</b>	<b>66,816</b>	<b>89,102</b>	<b>235,136</b>	<b>2,443,551</b>

<sup>1</sup> Require a matching contribution of provincial and/or municipal funds.

partment undertaking project; includes eight special short-term project grants.

<sup>4</sup> By location of school of social work; includes six planning and organization grants.

recipients.

<sup>2</sup> By location of agency or de-

<sup>3</sup> By location of agency.

<sup>5</sup> By home address of

**Subsection 5.—Vocational Rehabilitation**

The federal-provincial vocational rehabilitation program, which began in 1952, was consolidated and extended under the Vocational Rehabilitation of Disabled Persons Act, 1961. Agreements under this Act provide for equal sharing of costs between the Federal Government and the provinces or territories. These costs include co-ordination and provision of services to disabled or other vocationally disadvantaged individuals, training of rehabilitation personnel, and research and publicity. Approved services supplied by a provincial government or purchased from voluntary agencies by a provincial government include medical, social and vocational assessment, intensive counselling, restorative services, the provision of prostheses, vocational or educational upgrading, rehabilitation allowances, work conditioning, and provision of tools, books and other equipment. Employment counselling and placement are provided through the Canada Manpower Centres of the Department of Manpower and Immigration or by the voluntary agencies from which services are purchased.

In each participating province, a provincial co-ordinator or director of rehabilitation is responsible for the co-ordination and administration of services to disabled or vocationally disadvantaged persons. The federal aspects of the program are administered by the

Manpower Utilization Branch of the Department of Manpower and Immigration in co-operation with the Department's five regional offices. The Manpower Utilization Branch through its Special Groups Division also has responsibility for the development of services for other persons suffering occupational disadvantages. The Division has the function of encouraging a more favourable employment climate for older workers through a continuing educational program, encouragement of research, maintenance of liaison with management, labour and voluntary agencies, assembly and dissemination of informational material concerning industrial gerontology, and supportive services to the Canada Manpower Centres. The Department of Manpower and Immigration is co-operating with other federal departments in the study of the needs of occupationally disadvantaged groups for special programs. The Department is also co-operating with the Department of Indian Affairs and Northern Development regarding improvements in employment and training services for Indians, Eskimos and metis. Other persons suffering occupational disadvantages, such as inmates and former inmates of correctional institutions and adults with limited job prospects, are given special assistance by the Department which is also studying new ways to help such persons obtain productive and satisfying employment. Among other agencies contributing to vocational rehabilitation are the workmen's compensation boards in all provinces, which provide for the rehabilitation of injured workmen.

In the year ended Mar. 31, 1971, federal expenditures under the vocational rehabilitation program totalled \$5,259,000. Reports received on 3,833 disabled or vocationally disadvantaged persons rehabilitated during the year indicated that, at the end of the year, 3,234 of them were rehabilitated to regular employment and 359 to sheltered employment or self-care; 240 were rehabilitated as housewives. The cost of support of the 3,234 who obtained employment and of their dependants was estimated, before rehabilitation, at \$2,210,000 annually; their aggregate earnings, following rehabilitation, were estimated at \$14,000,000.

### Section 3.—Provincial Welfare Programs

Major welfare programs governed by provincial legislation include social assistance, services for the aged and child welfare services. Also, the Province of Quebec operates the Quebec Pension Plan, which is comparable to the Canada Pension Plan (see p. 338), and a family allowance program (see p. 354). Provincial departments of public welfare are responsible for the administration of welfare programs, although administration of certain programs may be shared with their municipalities.

Public services are supplemented by those of voluntary agencies whose interests include the welfare of families and children and of groups with special needs, such as the aged, recent immigrants, youth groups, and released prisoners. Welfare councils and social planning councils contribute to the planning and co-ordinating of local welfare services. Local voluntary agencies and institutions may receive public grants, depending on the nature and standard of their services, although their main support is usually from United Appeal funds or from sponsoring organizations.

#### Subsection 1.—Social Assistance

All provinces make legislative provision for assistance to persons in need and their dependants. All provinces have incorporated provisions for allowances to needy mothers with dependent children in a broadened program of provincial allowances to several categories of persons with long-term need or in a general program under which the only eligibility requirement is need, irrespective of the cause of need.

In addition to allowances to cover items of basic need, such as food, clothing, shelter, fuel and utilities, all provinces make provision for such special items as rehabilitation services, expenses incidental to education or obtaining employment, counselling, homemaker

services and institutional care. The provinces are reimbursed by the Federal Government under the Canada Assistance Plan for 50 p.c. of the costs of assistance and of certain welfare services given by the provincial and municipal authorities (see p. 347). The provincial departments of welfare set rates of assistance and conditions of eligibility; they have regulatory and supervisory powers over municipal administration of assistance, and require certain standards as a condition of provincial aid. Length of residence is not a condition of aid in any province, but municipal residence may determine the financially responsible authority. The provincial authority takes responsibility for aid in unorganized areas within the province and for persons who lack municipal residence.

The administration of assistance varies. In four provinces allowances to persons with long-term need, such as needy mothers with dependent children, disabled persons and the aged, are administered by the province and other allowances are administered by the municipalities. In Newfoundland, Prince Edward Island and New Brunswick, all assistance is administered by the provincial authority. In Quebec, the province administers assistance through regional and local offices, except in the City of Montreal where the municipality administers assistance on behalf of the province. In Saskatchewan, social assistance is administered by the province except in two municipalities which elected to retain responsibility for administration of the program. In British Columbia, a comprehensive program of general assistance is administered by the local authority, i.e., by the municipalities except in sparsely populated municipalities and in areas without municipal organization where aid is administered by the province; the province also administers a program of supplementary allowances to needy recipients of old age security pensions and the two federal-provincial categorical allowances. In the seven provinces where the municipalities have some administrative responsibility, the proportion of the costs of aid borne by the province varies from 40 p.c. to 100 p.c.

### Subsection 2.—Living Accommodation for Elderly Persons

In all provinces, homes for the aged and infirm are provided under provincial, municipal or voluntary auspices. These homes are required to meet standards set out in provincial legislation relating to homes for the aged, welfare institutions or public health. Voluntary homes are usually provincially inspected and in some provinces must be licensed.

All provinces in varying degrees make capital grants toward the construction or renovation of homes for the aged by municipalities or voluntary organizations and, generally speaking, such homes are exempt from municipal taxation. Some provinces also make provision for capital grants to municipalities, charitable organizations or non-profit corporations for the construction of low-rental housing for elderly persons. These projects are usually built under Sect. 16 of the National Housing Act, which provides for long-term low-interest loans to non-profit corporations constructing low-rental self-contained or hostel accommodation for older people. Units for the aged may also be included in low-rental public housing projects for families, built under Sect. 35 of the Act.

In some provinces efforts are made to place well, elderly people in small proprietary boarding homes. Those who are chronically ill may be cared for in chronic or convalescent hospitals, private or public nursing homes and some homes for the aged. All provinces contribute to the maintenance of needy persons in homes for the aged or other homes for special care, and these costs are shared by the Federal Government under the Canada Assistance Plan (see pp. 347-348).

### Subsection 3.—Child Welfare Services

Child welfare services, which include child protection and care, services for unmarried parents and adoption services, are provided in all provinces under provincial legislation. The programs are administered by the provincial authority or by local children's aid societies (voluntary agencies with boards of directors, operating under charter and under



the general supervision of provincial departments). In Newfoundland, Prince Edward Island, New Brunswick, Saskatchewan and Alberta, child welfare services are administered by the province; in Quebec, they are administered by recognized voluntary agencies and institutions, religious and secular; in Ontario, a network of local children's aid societies is responsible for the services; in Nova Scotia, Manitoba and British Columbia, services are administered by local children's aid societies in the heavily populated areas and by the province elsewhere.

Children's aid societies and the recognized agencies in Quebec receive substantial provincial grants and sometimes municipal grants and in many areas they also receive support from private subscriptions or from United Appeal funds. The costs of certain services and maintenance costs for children in care of a voluntary or public agency are sharable with the Federal Government under the Canada Assistance Plan (pp. 347-348).

Child welfare agencies, provincial or voluntary, have the authority to investigate cases of alleged neglect and, if necessary, to apprehend a child and to bring the case before a judge upon whom rests the responsibility of deciding whether in fact the child is neglected. When neglect is proved, the court may direct that the child be returned to his parent or parents under supervision, or be made a ward of the province or a children's aid society. Services are provided as appropriate and include services to children in their own homes, care in foster boarding homes or adoption homes or, for children who need it, in selected institutions. Institutions for children are governed by provincial child welfare legislation and are generally subject to inspection and in some provinces to licensing. Children placed for adoption may be wards or they may be placed on the written consent of the parent. Adoptions, including those arranged privately, number about 18,600 annually.

Services to unmarried parents include casework services to the mother and possibly to the father, legal assistance in obtaining support for the child from the father, and foster-home care or adoption services for the child. Support for unmarried mothers may be obtained under general assistance programs. In many centres, homes for unmarried mothers are operated under private or religious auspices.

Day nurseries for the children of working mothers are established in the larger centres. These are chiefly under voluntary auspices, except in Ontario, where there are also municipally sponsored day nurseries operated with the aid of provincial grants.

#### **Subsection 4.—Newfoundland's Schooling Allowances Program**

The Province of Newfoundland introduced its Parents' Supplement (Schooling Allowance) program in 1966. Under this scheme, an annual benefit of \$15 is paid in semi-annual instalments for each eligible child who is registered at and attending a school other than a trade school or university. There is no age limit specified in the legislation but the allowance terminates when the child leaves school.

#### **Subsection 5.—Quebec's Family Allowances Program**

The Province of Quebec introduced its own family allowances program under legislation enacted in 1967. Under this plan, the following allowances are paid at the end of each six-month period to persons satisfying the relationship and residence requirements in respect of children under 16 years of age: \$15 for one child, \$32.50 for two children, \$52.50 for three children, \$77.50 for four, \$107.50 for five, \$142.50 for six, and an extra \$35 for each child after the sixth. These allowances are increased by \$5 for each child between the ages of 12 and 16 years. To qualify for the allowances, children must be attending school regularly from the time when they are first required to do so, unless prevented by physical or mental infirmity. These allowances supplement those paid under the federal scheme.

### Section 4.—Emergency Welfare Services

The function of the Emergency Welfare Services Division of the Department of National Health and Welfare is to develop community capability to provide, in the event of a national emergency, essential welfare services not available through established welfare agencies. A 1965 Order in Council set up five emergency welfare services—emergency clothing, emergency feeding, emergency lodging, registration and inquiry, and personal services—and gave the Division responsibility for the continuation of welfare departments in support of rehabilitation and recovery. To these ends, policy has been defined, systems designed and, at all levels of government, welfare resources planned.

In peacetime, trained specialists within the federal, provincial and municipal departments of welfare, organized nationally, are responsible for developing an emergency welfare capability. The program is an integral part of the Canada Survival Plan and is co-ordinated with the programs of other Canadian Government departments and private agencies. Leaders are being trained in the art of organizing large numbers of volunteers for emergency welfare operations and a public education program is being maintained. Special printed forms and equipment for survival, not regularly available through commercial sources, have been produced and are located strategically across Canada.

## PART III.—HEALTH AND SOCIAL WELFARE EXPENDITURES

### Section 1.—Government Expenditures on Health and Social Welfare

In the years ended Mar. 31, 1963-70, expenditures by all levels of government on health and social welfare rose from \$3,898,500,000 to an estimated \$8,547,500,000, a more than twofold increase. If these figures are adjusted to take account of growth in population, the increase in per capita expenditures—from \$208 to \$404—was about 95 p.c. Government expenditures may also be measured in relation to major economic indicators; on this basis, annual government expenditures on health and social welfare over the period remained relatively stable, fluctuating between 12.5 p.c. and 14.0 p.c. of net national income and between 9.5 p.c. and 10.6 p.c. of gross national product.

The federal share of health and social welfare expenditures fell from 68.8 p.c. in 1962-63 to 59.2 p.c. in 1969-70, the provincial share rose from 28.2 p.c. to 38.7 p.c., and municipal outlays declined from 3.0 p.c. to 2.1 p.c. Compared with 1968-69, health and social welfare expenditures by all levels of government increased by \$1,251,000,000 or just over 17 p.c. This may be compared to the rise of \$851,600,000 or 13 p.c. in 1968-69 over 1967-68. Expenditures by the federal and provincial governments increased by 14.6 and 21.4 p.c., respectively, from 1968-69 to 1969-70. The main items causing this rise included: higher disbursements under the Old Age Security and Guaranteed Income Supplement programs principally because of the lowering of the eligible age and the increase in the monthly benefits paid; greater expenditures incurred by the Canada Assistance Plan which is wider in scope than the categorical programs it is intended to replace; higher expenditures under the Unemployment Insurance Act; higher expenditures under the Canada Pension Plan; greater outlays on behalf of health and welfare for the Indian and Eskimo populations; increasing expenditures under the Hospital Insurance and Diagnostic Services Act; increasing expenditures under the Medical Care Act; and contributions to the provinces under the Health and Hospital Construction Grants and the new Health Resources Fund Act.

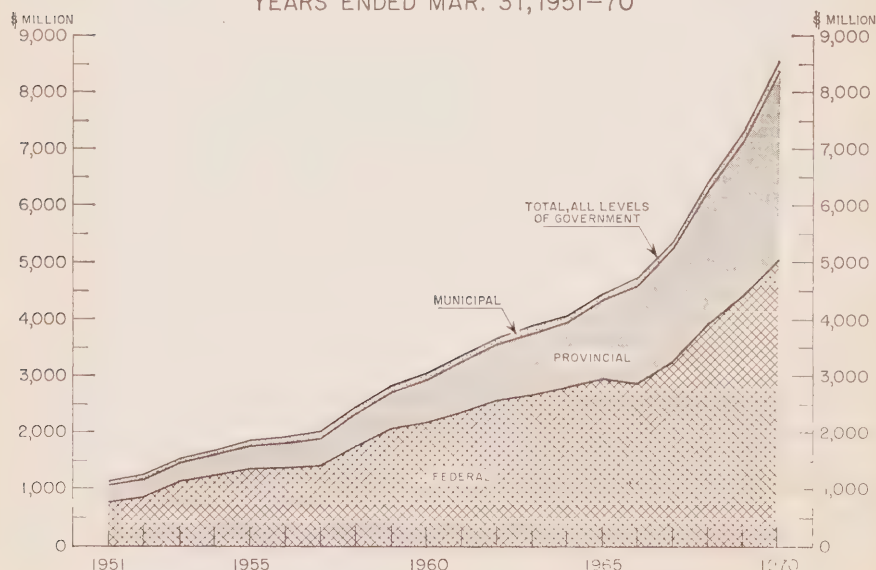
The relative federal declines, compared to provincial gains in recent years, have been caused to a substantial degree by increasing hospital expenditures by the provincial govern-

ment augmented by the effect of the "opting-out" arrangements made available to the provinces. Under the Established Programs (Interim Arrangements) Act, a province may choose to receive contributions from the Federal Government in the form of a tax abatement and an equalization payment in lieu of a direct federal contribution under the program. The opting-out arrangements have the effect, in this presentation, of showing an increase in provincial government expenditures while the federal fiscal payment is treated not as an expenditure but as a transfer payment. Thus, provincial expenditures include gross outlays by Quebec whereas federal expenditures on health and social welfare do not include the large sums paid or transferred to that province under the Established Programs (Interim Arrangements) Act and other fiscal arrangements.

The proportion of government expenditures on health and social welfare taken up by health programs continues to grow; in 1961-62 such programs accounted for \$1,126,000,000 or 31 p.c. of the total and in 1969-70 they amounted to \$3,557,000,000 or 42 p.c.

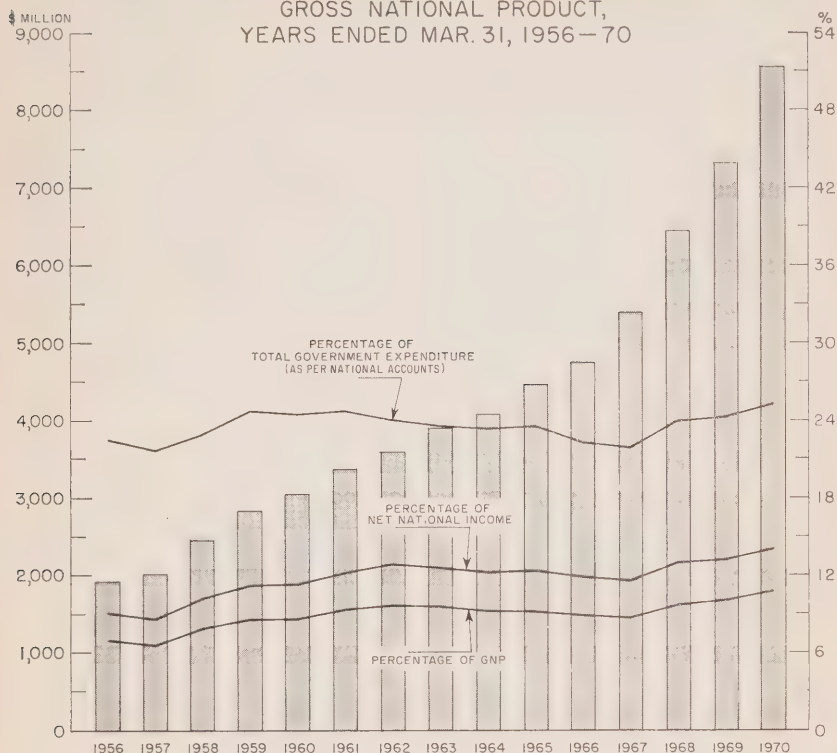
An outline of the principal federal income maintenance programs for 1969-70 shows the magnitude of the major programs and services—family allowances payments amounted to \$560,000,000, old age security payments to \$1,467,000,000 plus another \$263,000,000 under the guaranteed income supplement program, unemployment insurance benefits to \$542,000,000 and veterans pensions and allowances to \$218,000,000 and \$92,000,000, respectively. In addition, payments under the youth allowances program, which commenced in September 1964, amounted to \$55,000,000 excluding the Province of Quebec. That province had instituted a program of schooling allowances three years prior to the introduction of the federal program and this necessitated a special arrangement whereby Quebec continued its program but with appropriate fiscal reimbursement from the Federal Government. In 1967-68, Quebec inaugurated its own family allowances program supplementing the federal scheme (see p. 354).

#### EXPENDITURE ON HEALTH AND SOCIAL WELFARE BY ALL LEVELS OF GOVERNMENT, YEARS ENDED MAR. 31, 1951-70





EXPENDITURE ON HEALTH AND SOCIAL WELFARE BY ALL  
LEVELS OF GOVERNMENT WITH PERCENTAGES OF TOTAL  
GOVERNMENT EXPENDITURE, NET NATIONAL INCOME AND  
GROSS NATIONAL PRODUCT,  
YEARS ENDED MAR. 31, 1956-70



Federal-provincial income-maintenance programs in 1969-70 required expenditures of \$900,000 for old age assistance, \$1,900,000 for blindness allowances, \$1,400,000 for disabled persons allowances and \$700,000 for unemployment assistance, the latter including some municipal expenditures. The smallness of these amounts indicates the effectiveness of the Canada Assistance Plan, for which this was the fourth year of operation and which was intended to replace all activities under those programs at the option of each province (see pp. 347-348). In 1965, Quebec withdrew from these federal-provincial programs under the Established Programs (Interim Arrangements) Act, which entitled that province to a tax abatement and an equalization payment. Canada Assistance Plan expenditures in 1969-70 were \$294,000,000. Provincial workmen's compensation boards spent \$185,000,000 cash benefits for pensions and compensation.

In the field of health, federal grants to the provinces under the Hospital Insurance and Diagnostic Services Act totalled \$622,000,000 and grants for hospital construction and general health grants to the provinces and municipalities amounted to \$36,000,000. Provincial expenditures on hospital care were estimated at \$1,840,000,000 and expenditures on other health services at \$460,000,000. In addition, provincial workmen's compensation boards paid \$65,000,000 for medical aid and hospitalization, and municipal governments spent an estimated \$99,000,000 on health.

**1.—Total, Per Capita and Percentage Distribution of Government Expenditures on Health and Social Welfare, by Level of Government, Years Ended Mar. 31, 1963-70**

Year Ended Mar. 31—	Federal	Provincial	Municipal	Total
TOTAL EXPENDITURES				
	\$'000,000	\$'000,000	\$'000,000	\$'000,000
1963.....	2,683.5	1,097.7	117.3	3,898.5
1964.....	2,801.0	1,166.8	101.2	4,069.1
1965.....	2,969.7	1,376.1	108.2	4,454.0
1966.....	2,883.5	1,714.3	129.6	4,727.4
1967.....	3,243.6	2,013.8	127.0	5,384.4
1968.....	3,915.5	2,391.1	138.2	6,444.9
1969 <sup>1</sup> .....	4,413.5	2,725.0	158.0	7,296.5
1970 <sup>1</sup> .....	5,057.5	3,308.5	181.5	8,547.5
PER CAPITA EXPENDITURES				
	\$	\$	\$	\$
1963.....	143.44	58.68	6.27	208.39
1964.....	146.95	61.22	5.31	213.48
1965.....	152.92	70.86	5.57	229.35
1966.....	145.80	86.68	6.56	239.04
1967.....	160.88	99.90	6.30	267.08
1968.....	190.55	116.37	6.73	313.65
1969.....	211.61	130.65	7.57	349.83
1970 <sup>1</sup> .....	238.79	156.21	8.57	403.57
PERCENTAGE DISTRIBUTION				
1963.....	68.8	28.2	3.0	100.0
1964.....	68.8	28.7	2.5	100.0
1965.....	66.7	30.9	2.4	100.0
1966.....	61.0	36.3	2.7	100.0
1967.....	60.2	37.4	2.4	100.0
1968.....	60.8	37.1	2.1	100.0
1969.....	60.5	37.3	2.2	100.0
1970 <sup>1</sup> .....	59.2	38.7	2.1	100.0

<sup>1</sup> Includes or based on estimated data.

## Section 2.—Expenditures on Personal Health Care

Expenditures on personal health care reported here comprise expenditures of hospitals, earnings of physicians and dentists for professional services to their patients, and the value of prescription sales by retail pharmacies. Excluded are expenditures on the services of private nurses, chiropractors, osteopaths and optometrists; and expenditures on public health, on capital (buildings and interest) and on the administration of public health programs and of insurance plans.

Table 2 shows the components for each year from 1961 to 1970. Canadians spent a total of \$4,387,100,000 on personal health care in 1970, almost three times as much as in 1961. Expressed as a proportion of the gross national product, personal health care expenditures rose from 4.1 p.c. in 1961 to 5.2 p.c. in 1970. Expenditure per person over the same period changed from \$86.89 to \$204.95.

**2.—Expenditures on Personal Health Care, 1961-70**

(Millions of dollars)

Year	Hospital Services					Physicians' Services	Dentists' Services	Pre-scribed Drugs	Total
	General and Allied Special	Mental	Tuberculosis	Government of Canada	All Hospitals				
1961.....	722.1	134.9	28.2	63.9	949.0	388.3	116.7	133.6	1,587.6
1962.....	811.8	144.4	27.6	70.3	1,054.2	406.1	121.5	141.0	1,722.8
1963.....	909.8	163.0	28.3	73.8	1,174.9	453.4	136.9	156.6	1,921.9
1964.....	1,015.1	182.1	26.2	76.8	1,300.2	495.7	147.8	170.9	2,114.7
1965.....	1,144.5	211.6	26.0	79.8	1,461.9	545.1	160.1	200.0	2,367.1
1966.....	1,319.0	241.8	25.9	82.1	1,668.8	605.2	176.4	214.6	2,665.0
1967.....	1,523.0	283.9	26.0	83.3	1,916.3	686.2	187.2	239.5	3,029.1
1968.....	1,790.0	314.3	27.1	87.0	2,218.4	788.1	213.7	258.2	3,478.5
1969 <sup>1</sup> .....	1,997.5	352.2	26.4	88.0	2,464.1	901.4	239.7	270.1	3,875.4
1970 <sup>1</sup> .....	2,278.7	393.8	24.0	91.0	2,787.4	1,029.5	269.1	301.1	4,387.1

<sup>1</sup> Preliminary estimates, except 1969 data for "Hospital Services, Government of Canada" and "Physicians' Services", which are final.

## PART IV.—NATIONAL VOLUNTARY HEALTH AND WELFARE ACTIVITIES

A number of national voluntary agencies carry on important work in the provision of health and welfare services, medical research, and education. These agencies complement the services of the federal and provincial authorities in many fields, and play leading roles in stimulating public awareness of health and welfare needs and in promoting action to meet them. The organization and services of the following agencies are described in the 1970-71 Year Book at pp. 396-402:—

The Canadian Arthritis and Rheumatism Society  
 The Canadian Association for the Mentally Retarded  
 The Canadian Cancer Society  
 The Canadian Cystic Fibrosis Foundation  
 The Canadian Diabetic Association  
 The Canadian Hearing Society  
 Canadian Heart Foundation  
 Canadian Medic-Alert Foundation  
 The Canadian Mental Health Association  
 The Canadian National Institute for the Blind  
 The Canadian Paraplegic Association  
 The Canadian Red Cross Society  
 The Canadian Rehabilitation Council for the Disabled  
 The Canada Safety Council  
 The Canadian Tuberculosis and Respiratory Disease Association  
 The Canadian Welfare Council (now The Canadian Social Development Council)  
 The Health League of Canada  
 The Multiple Sclerosis Society of Canada  
 The Muscular Dystrophy Association of Canada  
 The National Cancer Institute of Canada  
 The St. John Ambulance Association  
 The Victorian Order of Nurses.



## PART V.—UNIFORM LEGISLATION GOVERNING PRIVATE PENSION PLANS

The enactment of the Canada and Quebec Pension Plans emphasized the need for uniform private pension legislation across Canada. Ontario amended the Ontario Pension Benefits Act with effect from July 30, 1965, and Quebec enacted the Supplemental Pension Plans Act with effect from July 15, 1965. The Pension Benefits Act of Alberta came into force on Jan. 1, 1967, and that of Saskatchewan was assented to on Apr. 1, 1967. The provincial legislation governs all pension plans operating on and after the effective date in the particular province. Similar legislation at the federal level, the Pension Benefits Standards Act, was assented to on Mar. 23, 1967, and is applicable only to pension plans having members employed in works, undertakings and businesses (generally, banks and interprovincial transportation and communication) that are under federal jurisdiction.

Under these Acts, basic standards have been established with which pension funds or plans organized and administered to provide a pension benefit to employees must comply in order to receive registration, and they are not allowed to operate in these provinces or in the federal areas of responsibility unless they have received registration.

By agreement, each of the provinces mentioned above recognizes similar legislation of the others, so that a pension plan that has been registered and reports in one province does not have to seek registration or duplicate all its reporting procedure in another of these provinces if it extends its operations to employees in that other province.

The legislation requires that an employee's benefits under a pension plan become fully vested (i.e., he has full entitlement to those benefits, which will be paid to him on retirement) when he reaches age 45 and has completed either a minimum of ten years of membership in a pension plan or ten years of service with the one employer. Moreover, should the employee leave his job or resign his membership in the plan prior to retirement, at least 75 p.c. of his total benefits under the plan must be locked-in for purposes of his pension, allowing him to withdraw no more than 25 p.c. of the commuted value of those benefits in a lump sum. These rules apply as from the qualification date established under the legislation or from the date the plan was established if it commenced operations after the qualification date.

Other provisions of this legislation are intended to ensure the full solvency of these pension plans within a specified period of time, to restrict the types of investments in which the funds of the plan may be invested, to provide that an employee's pension rights are portable if he should change his job, and to establish that each interested party to a pension plan is adequately informed as to the provisions of the plan.

## PART VI.—VETERANS SERVICES\*

The Department of Veterans Affairs administers most of the legislation known collectively as the Veterans Charter and also provides administrative facilities for the Canadian Pension Commission, which administers the Pension Act and Parts I to X of the Civilian War Pensions and Allowances Act; for the War Veterans Allowance Board, which administers the War Veterans Allowance Act and Part XI of the Civilian War Pensions and Allowances Act; and for the Secretary General (Canada) of the Commonwealth War Graves Commission.

The principal benefits now available to veterans are medical treatment for those eligible to receive it, land settlement and home construction assistance, educational assistance for the children of the war dead, general welfare services, disability and dependants pensions and war veterans allowances. The work of the Department, except the administration of the Veterans' Land Act, is carried out through 18 district offices and four sub-district offices in Canada and one district office in England; the benefits of the Veterans' Land Act are administered through seven regional offices and 26 district offices across Canada.

\* Prepared by the Department of Veterans Affairs, Ottawa.

## Section 1.—Pensions and Allowances

### Disability and Dependants Pensions

**Canadian Pension Commission.**—The Canadian Pension Commission administers the Pension Act (RSC 1970, c. P-7) and Parts I to X of the Civilian War Pensions and Allowances Act (RSC 1970, c. C-20). The members of the Commission are appointed by the Governor in Council who may also impose upon the Commission duties in respect of any grants in the nature of pensions, etc., made under any statute other than the Pension Act. It reports to Parliament through the Minister of Veterans Affairs. The Commission has district offices in principal cities across Canada with a Senior Pension Medical Examiner in charge.

**The Pension Act.**—Previous issues of the Year Book contain information on the development of Canadian pension legislation together with yearly statistics on numbers and liabilities.

The Pension Act makes provision for the payment of pensions in respect of disability or death resulting from injury or disease incurred during or attributable to service with the Canadian Forces in time of war or peace. Provision is also made for supplementing, up to Canadian rates, awards of pension to or in respect of Canadians for disability or death suffered as a result of service in the British or Allied Forces during World War I or World War II, or payment of pension at Canadian rates in cases where the claim has been rejected by the government of the country concerned.

Following are the rates of pension under Schedules A and B of the Pension Act from 1919 to date (December 1971).

RATES PER ANNUM FOR 100-P.C. DISABILITY PENSIONERS (SCHEDULE A)

<i>Effective Date</i>	<i>Disability Pensioner</i>	<i>Wife</i>	<i>One Child</i>	<i>Two Children</i>	<i>Each Subsequent Child</i>
	\$	\$	\$	\$	\$
Sept. 1, 1919.....	720	180	144	264	96
Sept. 1, 1920.....	900	300	180	324	120
Oct. 1, 1947.....	1,128	372	228	408	144
Jan. 1, 1952.....	1,500	540	240	420	144
July 1, 1957.....	1,800	600	240	420	144
Mar. 1, 1961.....	2,160	720	324	564	192
Sept. 1, 1964.....	2,400	768	360	624	216
Sept. 1, 1966.....	2,760	768	360	624	216
Jan. 1, 1968.....	3,180	876	408	720	240
Apr. 1, 1971.....	3,504	960	456	792	264

RATES PER ANNUM FOR WIDOWS AND DEPENDANTS (SCHEDULE B)

<i>Effective Date</i>	<i>Dependent Parent</i>	<i>Widow</i>	<i>One Child or Dependent Brother or Sister</i>	<i>Two Children or Dependent Brothers or Sisters</i>	<i>Each Subsequent Child or Dependent Brother or Sister</i>
	\$	\$	\$	\$	\$
Sept. 1, 1919.....	576	576	180	300	96
Sept. 1, 1920.....	720	720	180	324	120
Oct. 1, 1947.....	900	900	228	408	144
Jan. 1, 1952.....	900	1,200	240	420	144
July 1, 1957.....	1,080	1,380	240	420	144
Mar. 1, 1961.....	1,296	1,656	324	564	192
Sept. 1, 1964.....	1,428	1,824	360	624	216
Sept. 1, 1966.....	1,428	2,100	360	624	216
Jan. 1, 1968.....	1,632	2,400	408	720	240
Apr. 1, 1971.....	1,800	2,640	456	792	264

NOTE.—The rates for orphan children or orphan brothers and sisters are double those shown above. The pensionable children of widows who have been awarded pension are paid at orphan rates. Pensions awarded to parents or brothers and sisters may be less than the amounts shown in accordance with the provisions of the Pension Act.

Legislation assented to Apr. 7, 1971 (SC 1970-71, c. 34) provided an increase of 10 p.c. in the rate of pension effective Apr. 1, 1971; the rate for a 100-p.c. disability was increased from \$3,180 to \$3,504 a year. A widow's pension was increased to \$2,640 from \$2,400 and the maximum rate for the dependent parent of a deceased member of the forces was raised from \$1,632 to \$1,800 a year.

Amendments to the Pension Act (SC 1970-71, c. 31), which received Royal Assent on Mar. 30, 1971, provided many extensive benefits for pensioners and broadened the entire structure of pension legislation. Among the major changes was the provision of an exceptional incapacity allowance which permits, where merited, the grant of an additional amount of not less than \$800 and not more than \$2,400 a year for those 100-p.c. pensioners who suffer an exceptional incapacity. A basic minimum payment equivalent to pension at the rate of 50 p.c. was instituted for all ex-prisoners-of-war of the Japanese who have any assessable disability. In addition, deceased prisoners-of-war of the Japanese, whose death occurred prior to the proclamation of the amendments, will be presumed to have been in receipt of pension at an amount equivalent to 50 p.c. at the time of death; thus, all qualified widows and orphans of ex-prisoners of the Japanese are assured pension benefits whether or not death was attributable to service.

Other new provisions incorporated in the amended Act included: clarification of entitlement to pension for members of the peacetime forces; broadening of entitlement for and increased amounts for clothing allowances; additional pension for loss of a paired limb or organ from any cause whatever; provisions for posthumous assessment, where pension was paid at less than 48 p.c., to determine whether the disability was adequately assessed at that time; provision for a widow or child to continue or to initiate an application for pension in respect of a veteran's disability during lifetime on which he had failed to make application—if this claim can be established and if this raises the pension level to 48 p.c. or higher, survivor benefits may then be paid; and new adjudicating processes which will permit all claimants, whose applications have been rejected in the past, to re-apply to the Commission.

The amended Act authorized the establishment of the Pension Review Board which has the power to determine any questions of law or fact as to an award, and the amount of any such award; the decision of the Board is final and binding. The Board is also the responsible body when matters of interpretation of the Act are at issue. A pension applicant who is dissatisfied with a ruling of the Commission may appeal to the Pension Review Board.

The Civilian War Pensions and Allowances Act, Parts I to X, provides for the payment of pensions to or on behalf of persons who served in certain civilian groups that were closely associated with the war effort during World War II and who suffered injury or death as a result of such service; these include merchant seamen, saltwater fishermen, auxiliary services personnel, ferry pilots of the Armed Forces Transport Command, firefighters who served in Britain, etc.

### 1.—Pensions in Force under the Pensions Act, as at Mar. 31, 1971

Service	Disability		Dependant		Disability and Dependant	
	Pensions in Force	Liability	Pensions in Force	Liability	Pensions in Force	Liability
	No.	\$	No.	\$	No.	\$
World War I.....	22,298	29,503,226	12,752	29,760,139	35,050	59,263,365
World War II.....	102,666	112,794,212	15,220	30,426,538	117,886	143,220,750
Regular Force.....	3,344	2,729,733	661	1,658,623	4,005	4,389,356
Special Force.....	2,010	1,948,588	175	328,691	2,185	2,277,279
<b>Totals.....</b>	<b>130,318</b>	<b>146,975,759</b>	<b>28,808</b>	<b>62,173,991</b>	<b>159,126</b>	<b>209,149,750</b>



Important amendments were also made to this Act in 1971. The principal change was to remove the requirement—in the case of merchant seamen and certain others who served in civilian status—that application for pension must be made within one year of the occurrence of the disability concerned. The special provisions for members of the Forces who were prisoners of the Japanese are now fully applicable to merchant seamen and other designated civilians during wartime.

### War Veterans Allowances and Civilian War Allowances

**War Veterans Allowance Board.**—The War Veterans Allowance Board is a quasi-judicial body consisting, at present, of ten members appointed by the Governor in Council. The Board administers the War Veterans Allowance Act and Part XI of the Civilian War Pensions and Allowances Act and reports to Parliament through the Minister of Veterans Affairs. The Board acts as an appeal court for an applicant or recipient aggrieved by a decision of a District Authority and may, on its own motion, review and alter or reverse any adjudication of a District Authority. The Board is also responsible for instructing and guiding the District Authorities in the interpretation of policy and for advising the Minister with respect to Regulations concerning the administration of the Act.

**War Veterans Allowance District Authorities.**—In 1950, 18 District Authorities were established in the regional districts of the Department of Veterans Affairs and granted full power to adjudicate on all matters arising under the War Veterans Allowance Act. In 1960, a separate authority—the Foreign Countries District Authority—was established to look after recipients living outside Canada. The members of a District Authority are employees of the Department of Veterans Affairs appointed by the Minister with the approval of the Governor in Council.

**War Veterans Allowances.**—The War Veterans Allowance Act (RSC 1970, c. W-5), provides an allowance to otherwise qualified war veterans who, because of age or infirmity, are no longer able to derive their maintenance from employment and to ensure that their income does not fall below a specified scale. Widows and orphans of qualified veterans are eligible for benefits. Since its inception in 1930, the Act has been amended on 15 different occasions to meet additional needs of veterans and their dependants. The most recent amendment increased monthly rates and annual income ceilings, effective Apr. 1, 1971 to:—

<i>Item</i>	<i>Monthly Rate</i>	<i>Annual Income Ceiling*</i>
	\$	\$
Single.....	121	1,932
Married.....	201	3,252
One orphan.....	69	1,116
Two orphans.....	121	1,800
Three or more orphans.....	163	2,280

\* Where a recipient or spouse is blind, the income ceiling is \$120 higher.

At Dec. 31, 1970, there were 81,166 recipients of War Veterans Allowances, made up of 48,515 veterans, 32,310 widows and 341 orphans; 691 of the total resided outside Canada. The annual liability for all recipients was estimated at \$85,064,387.

**Civilian War Pensions and Allowances.**—Part XI of the Civilian War Pensions and Allowances Act makes available to certain groups of civilians, their widows and orphans, benefits similar to those available to veterans under the War Veterans Allowance Act. These groups, which performed meritorious service in World War I or World War II, are: Canadian merchant seamen of both wars; non-Canadians who served in Canadian merchant

ships in either war; Canadian voluntary aid detachments of World War I; Canadian fire-fighters of World War II; Canadian welfare workers of World War II; Canadian trans-atlantic aircrew of World War II; and Newfoundland Overseas Forestry Unit of World War II.

At Dec. 31, 1970, there were 2,124 civilians, 570 widows and nine orphans in receipt of Civilian War Allowances, a total of 2,703, of whom four resided outside Canada. The annual liability was estimated at \$3,625,334.

### **Bureau of Pensions Advocates**

The Bureau of Pensions Advocates was established under the Minister of Veterans Affairs by the amendments to the Pension Act 1971 (SC 1970-71, c. 31), effective Mar. 30, 1971. It succeeds the Veterans Bureau which had been in operation since 1930. The Bureau is not part of the Department of Veterans Affairs, but provides an independent professional legal aid service to applicants for awards under the Pension Act. The Chief Pensions Advocate is the Chief Executive Officer and is assisted by pensions advocates, all of whom are lawyers, located at the Bureau's Head Office in Ottawa and in district offices in major centres across Canada. Pensions Advocates represent applicants as counsel at Entitlement Board and Pension Review Board hearings and provide a general counselling service to applicants relative to their claims under the Pension Act. No charge is made for the services of the Bureau.

Statistics are not available for the new Bureau of Pensions Advocates but in its last year the Veterans Bureau presented 5,736 claims to the Canadian Pension Commission for adjudication of which 42 p.c. were wholly or partially granted.

## **Section 2.—Welfare and Treatment Services**

### **Welfare Services**

Welfare services for veterans and, where appropriate, their dependants are provided by the Welfare Services Branch. These include the administration of assigned statutes; the conducting of field work, and reporting for other branches of the Department, the Canadian Pension Commission, the War Veterans Allowance Board and Services Benevolent Funds; and the provision of a rehabilitation and welfare program of advice and counselling including referral, where indicated, to other public or private agencies, veterans organizations, etc.

**Assistance Fund.**—Recipients of benefits under the War Veterans Allowance Act and Part XI of the Civilian War Pensions and Allowances Act living in Canada may be given help from the Assistance Fund if their total income is lower than the permitted maximum. Assistance may take the form of a monthly supplement based on shelter, fuel, food, clothing, personal care and specified health costs or of a single award to meet an unusual or emergency need. The number of persons assisted in the year ended Mar. 31, 1971 was 19,666, the number in receipt of monthly supplements at the end of 1970 was 16,037 and Fund expenditures to Mar. 31, 1971, amounted to \$7,800,000.

**Education Assistance to Children.**—The Children of War Dead (Education Assistance) Act provides help in the form of allowances and the payment of fees for the post-secondary education of children of persons whose deaths have been attributed to military service. Assistance is restricted to children attending, in Canada, education institutions that require secondary school graduation matriculation or equivalent standing for admission, including, in addition to universities and colleges, such facilities as hospital schools of teaching and institutes of technology. From its inception in July 1953 to Mar. 31, 1971, expenditures totalled \$10,003,795, of which \$5,493,683 was spent in allowances and \$4,510,112 in fees. By the end of March 1971, 5,525 children of Canada's war dead had

been approved for training; of these, 2,885 had successfully completed training. At the same date, there were 717 students in university and non-university courses receiving assistance.

**Veterans Insurance.**—The Returned Soldiers Insurance Act (SC 1920, c. 54 as amended) provided eligibility to contract for life insurance with the Federal Government up to a maximum of \$5,000 to any one veteran of World War I. No policies were issued after Aug. 31, 1933. There were 48,319 policies issued during the eight years in which the Act was open amounting to \$109,299,500 and, of these, there were 4,314 in force with a value of \$9,325,041 on Dec. 31, 1970.

The Veterans Insurance Act (RSC 1970, c. V-3) enabled veterans following their discharge and widows of those who died during World War II service to contract with the Federal Government for a maximum of \$10,000 life insurance. Veterans with active service in Korea were extended eligibility by virtue of the Veterans Benefit Act 1954. The period of eligibility to apply for this insurance ended Oct. 31, 1968. To Oct. 31, 1968, 56,148 policies in the amount of \$185,141,500 had been issued and, of these, 23,814 with a value of \$76,665,852 were in force on Dec. 31, 1970.

**Rehabilitation and Welfare.**—Welfare officers at Departmental District Offices work closely with other branches of the Department, with other public agencies at all levels and with private agencies and organizations in assisting veterans and their dependants to deal with problems of social adjustment, particularly those associated with physical disabilities or the disabilities of increasing age. The latter occur more frequently, of course, as the age of the veteran population increases. A program of university, vocational, technical and home training with allowances, is provided for disabled pensioned veterans and vocational rehabilitation is also promoted by training assistance. Sheltered workshops at Toronto and Montreal and home assembly work in other centres produce poppies and memorial wreaths associated with Remembrance Day observances.

### **Treatment Services**

The Treatment Services Branch of the Department of Veterans Affairs provides medical and dental services for entitled veterans throughout Canada as well as for members of the Armed Forces, the Royal Canadian Mounted Police, and the wards of other governments or departments at the request and expense of the authorities concerned. Prosthetic services are provided to entitled veterans by the Department of National Health and Welfare but paid for by the Department of Veterans Affairs.

The Branch provides examination and treatment to disabled pensioners for their pensionable disabilities, and provides treatment to war veterans allowance recipients (but not to their dependants) and veterans whose service and financial circumstances render them eligible for free treatment or at a cost adjusted to their ability to pay. If a bed is available, any veteran may receive treatment in a Departmental hospital on a guarantee of payment of the cost of hospitalization. The pensioner receives treatment for his pensionable disabilities regardless of his place of residence but service to other veterans is available in Canada only. Subject to the approval of the Department, an eligible veteran may also obtain treatment at the expense of the Department in an outside hospital from a doctor of his choice. Domiciliary care may be provided to eligible veterans in Departmental facilities where the need for active or chronic treatment is sufficiently light, provided that excess beds are available.

Under the federal-provincial hospital insurance program, DVA hospitals are recognized for the provision of insured services to veterans. Where treatment is given for a non-pensioned condition at a DVA hospital to a veteran, or elsewhere to a veteran eligible under the veterans treatment regulations, the hospitalization is an insured service under the federal-provincial hospital insurance program and his medical care is an insured service



under the federal-provincial medical care insurance program. The Department pays premiums where required on behalf of veterans who are eligible for war veterans allowance.

**Hospital Facilities.**—Treatment is provided in nine active treatment hospitals located at Halifax, N.S.; Saint John, N.B.; Montreal and Ste. Anne de Bellevue, Que.; London, Ont.; Winnipeg, Man.; Calgary, Alta.; and Vancouver and Victoria, B.C.; and in three domiciliary care homes at Ottawa, Ont., Saskatoon, Sask., and Edmonton, Alta. The rated bed capacity of these institutions at Dec. 31, 1970, was 6,005 beds. It should also be noted that in Ottawa both acute and chronic cases requiring definitive treatment are admitted to the National Defence Medical Centre. A veterans pavilion of 67 beds is located at St. John's General Hospital, St. John's, Nfld.; 1,200 beds are available at Sunnybrook Hospital in Toronto and 150 at the Centre Hospitalier de l'Université Laval in Quebec for the priority use of veterans, and some 500 beds in community hospitals located in St. John's, Nfld., Charlottetown, P.E.I., Kingston, Ont., Regina and Saskatoon, Sask., and Edmonton, Alta.

**Medical Staff and Training Programs.**—The active and consulting medical staffs of departmental hospitals are usually private practitioners and specialists who also hold teaching appointments on the medical faculties of the various local universities. Their appointment and selection is normally recommended by the Deans of Medicine of the universities with which the departmental hospitals are affiliated. This affiliation results in approval by the Royal College of Physicians and Surgeons of Canada for postgraduate teaching in resident teaching programs of non-core years in medicine, surgery, psychiatry and other specialties. Some departmental hospitals are also affiliated with technical schools and act as hospital teaching units in technical school programs for paramedical sciences such as laboratory and radiology technicians. In addition, residency training programs are given in psychology, dietary, physiotherapy and occupational therapy, and in the medical social services at both the undergraduate and graduate levels. A post-graduate residency program in hospital pharmacology and pharmacy methodology is conducted at Westminster Hospital, London, Ont. At Camp Hill Hospital in Halifax, Shaughnessy Hospital in Vancouver, Deer Lodge in Winnipeg, and Westminster Hospital in London, the Department has become affiliated with the university medical school in the undergraduate clinical teaching program, in addition to participating in graduate residency training.

### Section 3.—Land Settlement and House Construction

The Veterans' Land Act (RSC 1970, c. V-4) provides financial, technical and supervisory assistance to World War II and Korean Force veterans, to enable them to engage in agriculture or commercial fishing on a full-time basis: to acquire, build or improve homes; and to settle on provincial, federal and Indian reserve land. Loans may be made of up to \$40,000 for full-time farmers on economic farm units, to \$18,000 for small family farmers, to \$16,000 for small holders (part-time farmers) and to \$18,000 for veterans building houses on city-size lots. The financial assistance available under the Act is generally comparable to that available to non-veterans under the Farm Credit Act and the National Housing Act.

From the inception of the Act in 1942 to Dec. 31, 1970, 123,858 veterans were settled under its provisions; 31,358 were established as full-time farmers, 79,325 as small holders, 5,664 as Crown land settlers and 1,415 as commercial fishermen, 1,776 Indian veterans were established on reservations and 4,320 veterans acted as their own contractors in building homes on city-size lots. Subsequent to settlement, 18,232 farmers and 15,362 small holders and commercial fishermen were given additional assistance. In 1970, loans amounting to over \$47,755,665 were approved on behalf of 5,611 veterans. From inception of operations to the end of 1970, \$1,087,692,016 was spent on repayable loans, advances and non-re-

payable grants and 64,740 veterans had earned conditional grants of \$114,285,289. By the end of that year, 47,038 of them had successfully completed their settlement contracts—15,727 farmers, 24,405 small holders, 605 commercial fishermen, 4,642 Crown land settlers, and 1,659 Indian veterans on reservations.

Field officers, highly trained in the techniques pertaining to agriculture, construction and land appraisals, provide advisory, supervisory and appraisal field services. During 1970, 3,923 properties were appraised, included in which were 145 for the Indian Off-Reserve and Eskimo Housing Program and 560 special assignments carried out on behalf of other government departments and agencies. Altogether, 716 new houses were started—703 for small holders and commercial fishermen, seven farm homes and six on city-size lots—and 1,254 new houses were completed.

During the year ended Mar. 31, 1971, instalments falling due on properties purchased by veterans under the Act amounted to \$34,248,042, excluding share-of-crop payments; over 91.8 p.c. of the total amount due was collected and 1,217 veterans under share-of-crop agreements paid \$1,334,051.

By Dec. 31, 1970, 16,052 veterans were insured under the Veterans' Land Act group life insurance for almost \$157,828,000. Since inception of the group plan, 219 insured veterans died and \$1,667,161 was paid to retire their indebtedness.

## 2.—Summary of Operations Under the Veterans' Land Act, as at Dec. 31, 1970

Item	Full-Time Farming	Small Holding	Commercial Fishing	Provincial Lands	Federal Lands	Indian Reserves	City-Size Lots	Total
Settlements made..... No.	31,358	79,325	1,415	5,095	569	1,776	4,320	129,538 <sup>1</sup>
Additional loans made..... "	18,232	15,213	149	—	—	—	—	33,594
Total loans made..... "	49,590	94,538	1,564	5,095	569	1,776	4,320	163,132 <sup>1</sup>
Public funds spent..... \$'000	329,378	695,170	8,455	11,295	1,242	3,809	38,343	1,087,692 <sup>1</sup>
Conditional grants earned. No.	24,039	33,621	951	4,114	356	1,659	—	64,740
Grants earned..... \$'000	50,049	48,870	1,746	9,409	821	3,390	—	114,285
Grants earned—titles released to veterans..... No.	14,170	19,639	586	4,114	356	1,659	—	40,524
Active accounts under administration..... "	11,982	46,352	633	249	79	—	9	60,204 <sup>2</sup>
Houses built..... "	2,912	31,378	338	1,464	131	—	4,325	40,548
Houses under construction.. "	11	535	3	13	—	—	5	567

<sup>1</sup> Includes 5,680 civilian purchaser accounts from inception.

<sup>2</sup> Includes 900 active civilian purchaser accounts.

## Section 4.—Commonwealth War Graves Commission

The current Charters of the Commonwealth War Graves Commission consist of two documents—the Original Charter of Incorporation dated May 21, 1917, and the new Supplemental Charter dated June 8, 1964. Under these Charters the Commission is entrusted with the marking and maintenance in perpetuity of the graves of those of the British Empire and Commonwealth Armed Forces who lost their lives between Aug. 4, 1914 and Aug. 31, 1921, and between Sept. 3, 1939, and Dec. 31, 1947, and with the erection of memorials to commemorate those with no known grave.

The Canadian High Commissioner in London, England, is the official Commission member for Canada, the Minister of Veterans Affairs is the Agent of the Commission in Canada, and the office of the Secretary-General of the Canadian Agency is in the Veterans Affairs Building, Ottawa.

# CHAPTER VII.—EDUCATION

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*The interpretation of the symbols used in the tables throughout the Year Book will be found on p. vii of this volume.*

## PART I.—FORMAL EDUCATION\*

### Section 1.—Current Developments in Education

The cost of education in Canada for the year ended Mar. 31, 1969 has been estimated at \$5,800,000,000, an amount representing slightly more than 8 p.c. of the gross national product; by comparison, the 1960 cost of education represented 4.3 p.c. of the gross national product. The increase is related to the fact that, during the 1960s, school and university enrolment increased by 50 p.c. and staff by 70 p.c. This culminated, by 1970, in approximately 30 p.c. of the entire population of Canada either receiving or dispensing education.

In the past decade, Canada's education administrators have become increasingly aware of the need for young people to receive the types of education that will prepare them for their futures; for professional, technological and cultural education to be diversified and of a relatively high standard; and for the provision of equal educational opportunity for each individual regardless of socio-economic status, sex, ethnicity or region. Linked to equality of opportunity and the need for diversified programs, education planners are offering a wide choice of courses at all levels of education. At the elementary and secondary levels, courses are included on fine arts, music, drama, urban planning, social geography, and man in society. Community colleges and vocational institutions give a widening range of advanced technological and para-professional courses. Universities offer varied interdisciplinary programs at the undergraduate and graduate levels and some have instituted programs of Canadian studies.

\* Prepared in the Education Division, Statistics Canada.



At the post-secondary non-university level, a proliferation of new structures has evolved. The most innovative type of institution that emerged across the country in the 1960s is generically known as the "community college". For example, in the Province of Quebec, there are now about 40 colleges of this type, many of them formerly operated by religious communities. They are now known as "collèges d'enseignement général et professionnel" and are commonly referred to as CEGEPs. There are also about 20 private classical colleges in the province, some of which will undoubtedly be absorbed into the CEGEP group within the next few years. Similarly in Ontario, colleges of applied arts and technology (which incorporated the former institutes of technology and the provincial vocational centres and are known as CAATs) were set up in 1967 in 20 regions. This upsurge in the establishment of additional post-secondary vocational and technological institutions has occurred all across Canada. The institutions are evolving to meet the labour market's increasing need for qualified technicians and the students' need for diversified education.

Another significant change in education is the greater accessibility of programs to students regardless of sex. Females, who comprised about 35 p.c. of the full-time university and community college enrolment in 1971, are increasingly selecting, and being selected for, certain post-secondary courses which previously had shown almost total male enrolments. For instance, greater numbers of females are studying architecture and urban planning, engineering and applied sciences, dentistry, law and pharmacy, and there are even a few females enrolled in such courses as electronics and forestry in certain institutions across the country. At the same time, male students are selecting courses which were formerly the preserves of females, such as nursing, social work, library science, dietetics and nutrition, and especially education. As education and occupations previously designated as male- or female-oriented become more open to both sexes, occupational choice will become increasingly more dependent on interest and ability regardless of sex. A major determinant of this transition is the continuing change in the cultural definitions of male and female work.

Further changes in Canadian education have been brought about by the realization that adjustments had to be made to accommodate variations in interest and abilities of students in different subjects. This has resulted in a drastic revision of policies to include non-graded systems, subject promotion, changes in methods of examination and the extension of guidance facilities.

One of the notable increases in teaching facilities is in the area of library service. A Statistics Canada survey showed that, in the school year 1968-69, school libraries increased their stocks of books by nearly 8,000,000. These libraries provide up-to-date reference books on all subjects in the school curricula and have assumed increasing importance as resource centres for audio-visual aids such as projectors, films, filmstrips, maps, tapes and records.

Efforts are also being made to overcome the financial barriers to continuing education. The investigations of demographers and sociologists confirmed the long-held suspicions that financial constraints were operating to deny education to many Canadians who could profit from it. Various methods have therefore been sought to lighten the financial burden upon the individual and to equalize the rapidly increasing load being carried by the taxpayer. The Federal Government is assuming an increasingly prominent role in the education field, particularly in regard to the re-training program of the Department of Manpower and Immigration involving adult technical and vocational training, post-secondary education and university education, all matters of prime concern to the nation as a whole.

The recent structural changes at the post-secondary level of education are described in more detail in the special article that follows.

## STRUCTURAL CHANGES IN TERTIARY EDUCATION IN CANADA\*

Educational growth in Canada over the past two decades has been marked by very substantial increases in total enrolment, with a corresponding rise in school construction. Increases in enrolment at the elementary and secondary levels have been accompanied by a significantly larger percentage of Canadian youth completing their secondary schooling and thus qualifying for admission to a variety of post-secondary institutions. The paragraphs that follow will show how this tertiary level of education has responded to the pressures of a society which has demanded more education.

Post-secondary education, since 1950, has grown at a faster rate than other levels of education; it has developed a range of new programs; it now spends around two billion dollars a year. Included in this level of education are such institutions as: community colleges, colleges of applied arts and technology, collèges d'enseignement général et professionnel, technical institutes, teachers' colleges, church-related colleges, and universities of varying complexity. These institutions, numbering several hundred, involve thousands of administrators, tens of thousands of teachers and hundreds of thousands of full and part-time students. It is in these institutions that Canada is developing its own pool of highly qualified manpower.

In most developed countries the education and training for high-level skills is accomplished by means of a centralized and uniform system of institutions. In Canada, where responsibility for education is a matter of provincial jurisdiction, this is not the case. A number of diverse and non-co-ordinated post-secondary educational institutions have been developed which have responded to apparent needs. Even within provinces, examples of considerable duplication of tertiary level educational services may still be found. In part, this lack of co-ordination reflects a strong belief that the effectiveness of post-secondary education, particularly at the university level, bears a direct relationship to the independence of the institutions. The history of university development over the past thousand years provides striking evidence in support of this belief. Thus, Canadian institutes of higher learning were, for the most part, established as private institutions with little support from government. In contrast, post-secondary non-university structures are heavily supported by government. The non-university sector of tertiary education has a relatively short history in Canada; for the most part, it was concerned initially with teacher training, and this has always been, largely, a concern of provincial departments of education. It is noteworthy that less than 25 years ago over 100 normal schools and teachers' colleges were operated under the direct control of government. By 1971, gradual integration of teacher training into universities left only 14 such institutions in the field.

Rapidly rising enrolments in the universities during the 1950s and 1960s placed severe strains on their resources as they responded to the demands for more education from a larger proportion of Canadian youth. Experimental programs were devised in a number of institutions with a view to meeting the changing demands of new and different graduate and undergraduate students. Substantial financial assistance was provided for both capital and operating expenditures by the provincial and federal governments. As the university sector grew in size and importance, it became apparent that the growing need for more education could not be satisfied solely by the universities. As a result, a significant number of non-university institutions were established.

Canadian cultural and social patterns have been frequently referred to as mosaic. Developments in post-secondary education appear to confirm this perception of Canadian life. There is great variety in the institutions designed to meet the tertiary educational needs of the Canadian community. They all serve the same basic purpose but there is little consistency among them.

\* Prepared (January 1972) by Miles Wisenthal, Director, and Eve Kassirer, Chief of Special Studies and Publications, Education Division, Statistics Canada, with acknowledgement to Alwyn Berland, Executive Secretary, Canadian Association of University Teachers; Dr. Gordon Campbell, Associate Professor, Faculty of Education, University of Lethbridge; Robin S. Harris, Chairman, Higher Education Group, University of Toronto; Geoffrey Holmes, Executive Secretary, Association of Atlantic Provinces; Dr. Lucien Michaud, Research Director, Association of Universities and Colleges of Canada; Dr. David Munroe, Special Advisor, Secretary of State; and Sandra Adler, Statistics Canada.





*Carleton University, attractively situated between the Rideau River and the Rideau Canal in south Ottawa, has grown steadily since it was established as a college in 1942 but particularly since it moved to its present site in 1959 and was incorporated as a university in 1967. Full-time student enrolment in 1971-72 was 8,575 and part-time enrolment 5,750.*

### **Changes in the Structural Profile of Tertiary Education**

The universities still are the predominant and traditional institutions offering tertiary education to Canadians. However, the recent growth of non-university institutions (particularly community colleges) has been little short of phenomenal and, in the process, the previously sharply defined distinction between levels of education have become faded and blurred. In this transition, transfers of responsibility for the education for various professionalized occupations have been effected, which tend to place all of education on a continuum. For example, nurse training, which was once offered only within hospital structures, is now provided at universities and in community and regional colleges. Variations on the applied-theoretical continuum in health care education now extend from colleges to universities; from diplomas to graduate degrees. In most cases in the health field there has been a trend to make greater use of the college sector of education for the training of medical technologists.

A reversal of this trend is observed in teacher training. In 1951, nearly 30 p.c. of the students enrolled in non-university institutions were teachers-in-training in normal schools and teachers' colleges. In 1971, 20 years later, less than 3 p.c. of the total non-university college population were teacher trainees. In fact, the number of teacher training institutions has been reduced to a total of 14. Most teachers are now receiving their training in universities.



The scope of tertiary education has been broadened to include some provincially operated vocational schools, and to marginally link up with secondary school night classes designed to offer part-time continuing education to adults.

### Community College Structures\*

The term "community college" used across Canada in the generic sense, refers to a group of tertiary-level structures across the country having certain characteristics more or less in common. None grants degrees; all are oriented to community needs. Colleges offer one, two, or three years of study beyond secondary school. The college's chief function is not research but teaching. Many are public institutions stressing an open-door policy and are supported financially by the government; others are private. Instruction, available to both full-time and part-time students, is offered in the day and evening. Few in fact use the term community college in their name.

Provincial community colleges exist in an array of forms throughout Canada and within provinces. Some are comprehensive, offering both university-parallel programs and technological training. Others offer programs in only one category or the other. These structures are characterized by great flexibility and diversity in programs, student populations, administrative arrangements and philosophical bases. These diverse elements are readily apparent in the developments presented below of community college structures in each of the provinces in Canada. The fact that no fixed pattern has yet evolved enhances the potency of the community college system.

Although the Atlantic Provinces have long fostered institutes of technology in preference to community-oriented colleges, a change toward the latter has begun. A citizens' planning committee helped found Holland College in Prince Edward Island in 1969; a three-man inquiry on Bilingual Higher Education in Nova Scotia recommended the establishment of a bilingual community college; the New Brunswick Higher Education Commission's report in 1969 urged the expansion of post-secondary diploma level courses; and as far back as 1967 Newfoundland's Royal Commission on Education and Youth urged the establishment of community colleges.

Quebec's collèges d'enseignement général et professionnel (CEGEPs) which offer both academic and transfer courses have swiftly transferred the structure of tertiary education in that province. Quebec is the only province in which college level education is a prerequisite for entrance to a Quebec university. Of the CEGEPs created since 1965, 35 in 1970 are French language; four—Dawson, Vanier, Sir John Abbott, and Champlain College—opened in 1969, 1970 and 1971, are English language. In keeping with the concept of a community college, each CEGEP has a board of directors consisting of 24 members, comprising faculty, students, parents and other citizens. In 1970, there was a total of 63 public and private colleges.

The provincial legislature in Ontario set up a system of colleges of applied arts and technology (CAATs) in 1965. The conceptual framework of these CAATs has as its base post-secondary education which does not include university-parallel courses. This particular structural orientation has affected not only the type of courses offered but also the manner in which they are taught. The administration consists of a Board of Governors for each college under a single Council of Regents, and many locally appointed curriculum advisory committees. In 1971, there were in Ontario 20 CAATs (some with two or three branches) involving about 33,000 students and 2,500 teaching staff. In addition, there were four colleges of agricultural technology, three schools of human medical technology, one school of veterinary medical technology, one college of art and Ryerson Polytechnical Institute. (In 1971, the latter became a degree-granting institution.)

It was not until 1969 that Manitoba established a system of community colleges, following a report of the Manitoba Education Research Council. The three existing

\* Based in part on a detailed paper, "The Community College in Canada", by Gordon Campbell (Faculty of Education, University of Lethbridge), in *Universities and Colleges of Canada* (Ottawa: Association of Universities and Colleges of Canada, 1971).



*St. Lawrence College of Applied Arts and Technology, established in 1967, has campuses at Kingston, Cornwall and Brockville in Ontario. In 1971 some 2,000 full-time students were enrolled in 30 post-secondary programs of from one to three years in length, another 2,000 part-time students took advantage of continuing education offerings and more than 500 adults were registered in retraining and apprentice courses.*

*The two-year commercial communications program at St. Lawrence College includes training in advertising and public relations.*



colleges are administered directly by the Department of Colleges and Universities Affairs, with an advisory Community Colleges Council; they do not offer university-level courses.

Saskatchewan had, per capita, a large number of church-related "junior" colleges but recently facilitated their affiliation with the University of Saskatchewan and, in a few cases, transition to secondary-school level. Today three colleges exist, only one of which was an original junior college. Two of these do not offer university-parallel courses. The community aspect is not emphasized; the institutes are managed by an agency of the Department of Education concerned with meeting provincial needs. No boards of governors exist. However, a Community College Association was founded recently in Prince Albert with the objective of establishing a community college.

A system of community colleges was established in Alberta in 1969 by the Colleges Act. The core ingredient of the system is the Alberta Colleges Commission, a board comprising nine members having wide regulatory powers regarding financial and other affairs. The Act is designed to foster both university-parallel and technical programs. In 1971, the community college system consisted of six comprehensive colleges, two institutes of technology, three schools of agriculture, and two private (church-related) colleges.

In 1970, amendments to the British Columbia Public Schools Act categorized all community colleges as comprehensive regional colleges offering university-parallel courses and strengthened, at the same time, province-wide co-ordination of post-high school and adult education. In 1971, the community college system was enlarged by combining some of the provincially operated vocational schools with adjacent regional colleges and operating the others in close integration with the college system. The British Columbia Institute of Technology is not part of the college system and continues to function as a provincially operated institution. In 1971, there were in British Columbia, 10 regional colleges, one city college, two private (church-related) colleges and one institute of technology. Two agencies function between the College Council and the government.

A great deal of discussion is taking place in Canada today regarding the variable patterns of community colleges, raising many so far unanswered questions in relation to structure and function. However, an ideal type is tending to emerge which includes: a college open all year with a 14-hour daily schedule; a wide choice of teaching and learning strategies; a faculty that emphasizes teaching standards; more emphasis on courses in which there are no formal grades; the abolition of the concept of failure in the learning process; more attention to work-study programs; greater significance in out-of-class learning relative to that in the formal classroom; and representation of faculty and students on administrative bodies.

Very clearly the sweep of the community college system across the country is profoundly affecting Canadian tertiary education, exposing fascinating paths, as yet unexplored. Even in their infancy, community college structures are ordering and patterning an extraordinarily important segment of tertiary education in Canadian society today.

### **Structures for Co-ordination and Integration**

As a result of the large and rapid expansion of tertiary education since 1960, there has been an obvious need for old and new structures to foster co-ordination and integration for and among these institutions. As pointed out earlier, the great increase in financial support demanded mechanisms that would allow for a regular flow of funds to permit planning and orderly development. The Federal Government created, in 1966, an Education Support Branch in the Department of the Secretary of State to facilitate its role in this process of financially assisting the provinces in the discharge of their post-secondary educational responsibilities. Utilizing the Education Support Branch as an instrument for its programs, the Federal Government instituted, in 1967, federal-provincial fiscal arrangements to transfer funds for tertiary education to the provinces in a systematic fashion. In addition, new provincial government agencies, an increasing number of university associations, new community college associations, and other co-ordinating mechanisms exist. These are discussed below.

**Provincial Government Agencies.**—Partly because of increasing rationalization, the traditional separation of non-university from university education is becoming blurred in many parts of Canada (certainly for administrative purposes) and this is reflected in new government structures. For example, a relatively recent phenomenon of great importance is the development of grants commissions, boards and departments which concern



themselves with the range of post-secondary education. Grants commissions, as mechanisms of control in tertiary education in Canada, are patterned after the United Grants Commission of the United Kingdom, but wide variations exist. A panorama of such commissions, boards and departments is presented in the following paragraphs.

In Prince Edward Island, a Grants Commission on Post-Secondary Education was established in 1969. In Nova Scotia, a University Grants Committee was appointed in 1963. In 1967, a New Brunswick Higher Education Commission was appointed which has jurisdiction over universities, colleges, teachers' colleges and post-secondary technical schools. During 1971, the recommendation of the commission investigating Maritime union for a single grants commission for all post-secondary education was adopted by the three provinces. It is expected that this new unifying element which will co-ordinate all post-secondary education in the Maritime Provinces will be in operation in 1972 or 1973.

Ontario established a permanent Committee on University Affairs in 1964. Manitoba has operated with a Universities Grants Commission since 1967; and in Alberta there are two Commissions, one which concerns itself with university and the other with college education. The Academic Board of British Columbia has a responsibility for all post-secondary education but concentrates largely on the regional colleges; an Advisory Board on Finance in British Columbia makes recommendations regarding the dividing of government grants among the universities. In Newfoundland and Saskatchewan (each of which has only a single university) the universities negotiate directly with their governments and not through intermediary commissions.

As post-secondary education has expanded, it has placed increasing demands on the resources of provincial governments. To ensure that the continued growth of this level of education meets the needs of the population it is designed to serve and also to provide tertiary education with a voice in cabinet deliberations, some provinces created independent departments within their departments of education to serve this purpose. Thus, there is now a Department of Colleges and Universities in Ontario; a Department of Colleges and Universities Affairs in Manitoba; and a Department of Advanced Education in Alberta. In Saskatchewan a second department of education has been announced. Quebec has created two directorates, one of which is responsible for universities and the other for colleges. British Columbia has created a new position under the Supervisor of Post-Secondary Services called Co-ordinator of Post-Secondary Services; the Supervisor is directly responsible to the Deputy Minister.

All provinces have now established administrative structures for dealing with a level of education which, less than 20 years ago, they were content to leave largely in the hands of the private sector. The diversity between the various provincial administrative and governmental structures is reflected to some extent in the roles assigned to the institutions, and in particular to the non-university institutions.

**University Associations.**—Canadian universities have co-ordinating associations at the national, regional and provincial levels. Nation-wide alliances include the Association of Universities and Colleges of Canada and the Canadian Association of University Teachers. A national student organization—the Canadian Union of Students—existed up to 1969 when it disbanded. The universities of the Provinces of Newfoundland, New Brunswick, Nova Scotia, and Prince Edward Island belong to an Association of Atlantic Universities. In addition, there is a committee of presidents of universities of New Brunswick, a *Conférence des recteurs et des principaux du Québec*, a Council of Ontario Universities, and an informal organization of presidents of universities of the western provinces. These organizations of universities (or their presidents) provide a medium for communication, facilitate co-operation among the universities themselves, and negotiate with government agencies identified above.

**Community College Associations.**—Concomitant with the development of provincial community college systems have been province-wide alliances of college personnel. Formal and informal structures that have emerged vary widely in scope, membership and effectiveness.

In British Columbia, college principals meet informally, and students unite in the British Columbia Community College Students' Association; in addition, there is a College Faculties Federation of British Columbia. The Alberta Association of College Administrators consists of board members and administration personnel of all colleges in Alberta; an Alberta Association of College Faculties exists, which is a professional organization for college teaching personnel.

Ontario has the following college personnel structures: a student's organization; the Ontario Federation of Community College Faculty Association (which in 1969-70 was in dispute with the Civil Service Association of Ontario regarding faculty bargaining rights); a Committee of College Presidents; and an Association of Colleges of Applied Arts and Technology which sponsors an annual conference.

In Quebec, the following structures exist: two associations concerned with over-all college organization; three organizations concerned with faculty, and a variety with students; and an active association with a full-time secretariat, called *Fédération des Collèges d'enseignement général et professionnel*. Although the *Fédération* is independent of the Quebec government, it is supported by the government with a grant of \$5 per student. An estimated \$250,000 aids research and organization. In addition, private colleges are members of the Association des Collèges du Québec which maintains liaison with the *Fédération des Collèges d'enseignement général et professionnel*.

In May 1970, the Canadian Association of Technical Administrators proposed a new constitution and changed its name to the Canadian Association of Community College Administrators.

In 1967 the Kellogg Foundation granted \$200,000 to the Canadian Association for Adult Education (CAAE) to explore the possibility of developing a national bilingual college association or an agency useful to all levels of college organizations across the country. The CAAE established a Canadian Commission for the Community College and appointed to its board of directors, students, local college board members, faculty and administrators; this Commission was later superseded by the Association of Canadian Community Colleges, with headquarters in Montreal.

**Other Co-ordinating Mechanisms.**—In addition to the above-mentioned commissions, boards, departments and associations designed to facilitate the provision of tertiary education, other co-ordinating structures exist. In Western Canada, the Inter-provincial Committee on University Rationalization (IPCUR) deals with integration and co-ordination in higher education in Alberta, Saskatchewan and Manitoba. IPCUR offers a forum for discussion and is the recipient of recommendations from universities and individuals.

A national advisory structure for co-ordination of research was established two years ago in the form of the Tri-Council Committee. This Committee is composed of a few senior members from the National Research Council (physical and natural science research), the Medical Research Council (medical research), and the Canada Council (human and social science research). The Committee's main function is to keep each Council informed of the others' work. Responsibility for administration, which is rotating among the Councils, is being carried by the Medical Research Council in 1972.

The Council of Ministers of Education, Canada, was established in 1967 to enable the Ministers to consult on matters of common interest and to provide a medium for co-operation among provincial governments in areas of mutual interest and concern in education. Special committees have been created to deal with the range of educational topics which

are of national concern. One important committee is that which concerns itself with post-secondary education. A permanent secretariat was established which is located in Toronto.

In 1971 a Minister of State for Science and Technology was appointed by the Federal Government.

The Education Division of Statistics Canada is a national agency which acts in a co-ordinating and integrating role. The collecting, storing, disseminating and analysis of national education statistics at all levels serve to link the various isolated educational patterns across Canada, into a total framework. This work will be strengthened by a computerized, national integrated information system which the Education Division has begun to develop in collaboration with a network of educational institutions across Canada.

The heterogeneity and complexity of Canadian society is mirrored by the educational structures designed to serve the variety of needs perceived by each of the provinces. However, it is becoming increasingly apparent that despite the differences which have been institutionalized there are enough common educational needs of the various regions of Canada to justify serious efforts at some form of rationalization. Over the coming decade, the co-ordinating developments referred to earlier are likely to be speeded up as enrolments, costs and interprovincial mobility increase.

## **Section 2.—Administration and Organizational Structure of Education**

### **Subsection 1.—Responsibility for Education**

#### **Federal Responsibility**

Canada is a federal state, in which responsibility for the organization and administration of public education is exercised by the provincial and territorial governments. The Federal Government is directly concerned only with schools for Indian children which are administered by the Education Branch of the federal Department of Indian Affairs and Northern Development, with schools for children of servicemen operated in Europe by the Department of National Defence, and with schools for inmates of federal penitentiaries. In addition, the Federal Government finances re-training of adults, provides financial support to the provinces amounting to at least 50 p.c. of operating costs of post-secondary education, participates to a considerable extent in informal education, and makes grants-in-aid for research personnel and equipment in universities (see pp. 394–396).

#### **Provincial Responsibility**

Each of the ten provinces and the two territories has the authority and responsibility for organizing its education system as it sees fit and, as a consequence, organization, policies and practices differ from one to the other. Each has a department of education or of education and youth, headed by a minister who is a member of the Cabinet in the case of the provinces or responsible to the Council in the case of the territories; Ontario has a Department of Colleges and Universities, Manitoba a Department of Colleges and Universities Affairs and Alberta a Department of Advanced Education. Each provincial department is administered by a deputy minister who is a professional educationalist and a public servant. He advises the minister, supervises the department and gives a measure of permanency to its education policy and, in general, carries out that policy and is responsible for the enforcement of the Public School Act. The department of education usually also includes a chief inspector of schools and a staff of local inspectors, as well as directors or supervisors of curricula, technical education, teacher training, home economics, guidance, physical education, audio-visual education, correspondence instruction, adult education, other sections according to the needs of the particular province, and technical personnel and clerks.



Other provincial departments having some responsibility for operating school programs include departments of labour which operate apprenticeship programs, agriculture departments which operate agriculture schools, departments of attorney-general or of welfare which operate reform schools, and departments of lands and forests which operate forest ranger schools.

From the beginning, each department of education has undertaken, among other things, to provide: (1) inspection services to ensure maintenance of standards; (2) teacher certification; (3) courses of study and lists of prescribed or approved textbooks; (4) financial assistance to local authorities in the construction and operation of schools; and (5) guidance regulations for trustees and teachers. In return, each department requires regular reports from the schools. When first introduced, government grants to schools were based on such factors as number of teachers, enrolment, days in session and attendance. Somewhat later, special grants were introduced in most provinces to meet a variety of expenses, such as the construction of the first school, the organization of special classes, the transportation for pupils, school lunches, and other contingencies. A number of provinces made provision for equalization grants and now most of them have a foundation program of one kind or another.

The work of the departments of education has grown considerably. Many have expanded their services in the fields of health, audio-visual aids, art, music, agriculture, sociology, special education, correspondence courses and pre-vocational and trade courses. At the same time there has been an increasing delegation of authority to local boards and school staffs. One illustration of this tendency is a reduction in the number of departmental (external) year-end examinations. Few provinces now provide for more than one or two such examinations—at the end of the final and, in some cases, at the end of the second last year of the secondary school course. Another illustration is the increasing use of lists of approved textbooks from which local authorities may make their own choice, instead of lists of prescribed texts. Courses of study are now seldom planned by only one or two experts in the department; instead, they result from conferences and workshops including active teachers and other interested individuals or bodies. In most provinces "curriculum construction" is considered to be a continuous procedure.

**Elementary and Secondary Schools.**—In all provinces schools are established and operated by local education authorities functioning under the terms of a Public School Act and held responsible to the provincial government and resident ratepayers for the actual operation of the local schools. Through the delegation of authority, education has become a provincial-local partnership with the degree of decentralization reviewed intermittently.

Elementary and secondary schools may be classified as publicly controlled or private. The publicly controlled schools, sometimes referred to as "public" schools (including separate schools), encompass those that operate under the provincial school system with locally appointed or elected school boards. Private schools generally either provide a similar curriculum to that of publicly controlled schools or concentrate on business, commercial, trade, technical and correspondence courses, or provide a combination of such courses.

Under recent amendments to provincial legislation, school units have been consolidated and consequently enlarged in all provinces. With the growth of cities and towns and of educational facilities and requirements, the old-time three-member local school board became inadequate as an administrative structure. The original school boards remained as units but provision was made for urban school boards consisting of more members, responsible for both elementary and secondary schools and for providing the necessary staff, buildings, equipment and transportation. The local boards still in existence in some districts have limited powers and duties, usually functioning in an advisory capacity and looking after buildings and grounds.

The numbers of active independent public school boards and school trustees in each province and the Mackenzie District of the Northwest Territories, as of January 1970, were:—

Province or District	School Boards Composed of Trustees Who Are—				
	Independent School Boards	All Elected	Some Appointed Some Elected	All Appointed	School Trustees
	No.	No.	No.	No.	No.
Newfoundland.....	43	—	—	43	569
Prince Edward Island.....	3	306	16	2	1,191
Nova Scotia.....	65	—	—	77	473
New Brunswick.....	33	—	33	—	441
Quebec.....	77	—	—	—	—
Ontario.....	77	222	—	—	2,140
Manitoba.....	41 <sup>1</sup>	122	—	—	665
Saskatchewan.....	79	125	—	—	699
Alberta.....	193 <sup>2</sup>	193	—	—	894
British Columbia.....	81	81	—	—	535
Mackenzie District (N.W.T.)	2	2	—	—	12
CANADA.....	617	1,051	49	122	7,619

<sup>1</sup> Does not include remote school districts, sterling elementary only.

<sup>2</sup> Includes some small rural boards admini-

**Community Colleges.**—Although there are some privately operated colleges, the provinces are partially to totally responsible for co-ordinating, regulating and financing community colleges and related institutions. Some provincial governments completely finance these colleges while others do so in part. Similarly, the degree of local autonomy given the colleges varies by province.

Since 1960, Alberta, British Columbia, Ontario and Quebec have established new community college structures. In Alberta, the provincial agency is the Alberta College Commission composed of nine members, all appointed by the government. In British Columbia, an advisory board—the Academic Board—serves both universities and colleges and consists of nine members, six appointed by the university and three by the provincial government. Ontario has a provincial board—the College of Regents—consisting of 15 members appointed by the Minister of Education. In Quebec, the Department of Education is responsible for many agency functions. The composition of the board of governors varies by province. For example, in Quebec, it consists of 19 members including representatives from the university, the principal and academic dean, students, and parents of students.

**Universities.**—There are distinctive differences in Canadian systems of higher education. The universities and colleges long ago established by the French were based on the culture of Old France and were administered by Roman Catholic groups, either religious or secular. These French-language institutions still retain their traditional characteristics but are now conforming almost entirely to the North American system of administration. The largest group of universities and colleges in Canada are administered by English-speaking staff and offers instruction in English. Apart from those founded and still administered by various Protestant religious groups, these institutions are mainly non-denominational, having been established through private subscription or by the provincial government concerned.

Civil legislation regarding the establishment of new institutions or changes in existing ones is usually enacted by provincial legislatures, except for federal military colleges and a few institutions originally established by Act of the Canadian Parliament. Once an

institution is legally chartered, control is vested in its governing body, the membership of which is indicated in the charter. The line of authority runs from the board of governors through the president (or recteur) to the senate and deans and the faculty as a whole. The composition of the board of governors varies according to the type of institution. Provincial universities normally have government representation; church-related institutions have clergymen. Nearly all boards have either direct representation from the business community, alumni associations and other organizations, or are advised by these groups through advisory boards or committees. A recent phenomenon has been the inclusion of students on administrative bodies. The size of the board varies from a very few to over sixty. It has ultimate control of the university and normally reserves to itself complete financial powers, including the appointment of the president and most other staff. On occasion there will be faculty representation on the board and recently there have been attempts on the part of faculty groups of many institutions to obtain greater representation on the boards of governors. Responsibility for academic affairs is usually delegated to the senate. Composed mainly of faculty members, although there may also be alumni and representatives of non-academic groups included, the board is responsible for admission, courses, discipline and the awarding of degrees.



*The Sir Charles Tupper Building is one of the several additions that have been made during the past five years to the campus of Dalhousie University in Halifax. This building houses the faculty and departments of medicine.*

## Subsection 2.—Levels of Education

### Pre-grade 1, Elementary and Secondary Education

Pre-grade 1 enrolment in schools offering elementary-grade instruction is neither compulsory nor universal throughout Canada, although kindergartens for five-year-olds are part of the elementary school system in most large urban centres in most provinces. Recently, an increasing number of kindergartens are accepting four-year-olds. There are also some kindergartens which are run by private individuals and which accept children of three to five years of age.

Each September, most Canadian children of age six enter an eight-grade publicly controlled (including separate) elementary school. At about 14 years of age, a significant



proportion of those who entered grade 1 move on to a four- or five-year secondary school. Less than 3 p.c. of the primary and secondary students in Canada attend private schools.

The 8-4 plan leading from grade 1 to university was for many years the basic plan for organizing the curriculum and schools, other than that of the Catholic School Boards of Quebec. This plan, although still followed in some school jurisdictions, has been modified from time to time in all provinces, cities or groups of schools. There are a number of variants to be found in Canada at present: the addition of one or even two years of secondary schooling; the introduction of junior high schools, changing the organization to a 6-3-3 or 6-3-4 plan; or again, the combining of the first six years of elementary school into two units, each designed to reach specified goals during a three-year period. In the recently established community colleges, the last one or two years of high school and the first one or two years of college are offered.

At the secondary level, three programs can frequently be distinguished—the university entrance course, the general course for those wishing to complete an academic type of program before entering employment, and vocational courses for those wishing to enter skilled trades or pursue further training in the technological fields.

Secondary schools were at one time predominantly academic and prepared their pupils for entry into university. Until recent years, vocational schools were to be found only in the large cities, although schools in some of the smaller centres did provide a few commercial and technical subjects as options in the academic curriculum. Today, in addition to the vocational schools and the regular secondary schools that provide commercial courses, there are increasing numbers of composite and regional high schools offering regular academic subjects and vocational training in such courses as home economics, agriculture, shop-work and commercial subjects. Occupational or pre-employment classes, set up as part of the total program in regular vocational schools, require from one to three years or even four years for completion, and are terminal in nature. In addition to this type of ungraded course, some schools offer special, ungraded one- or two-year vocational programs to students who have completed the final years of high school. Some secondary schools also provide occupational programs for students who have shown no particular aptitude for an academic education or for training in a specific trade. These students learn no specific trade until perhaps their third year of studies. By remaining in school longer, however, they adjust more easily to conditions in the work world.

**Special Education.**—Interest and developments are increasing in the education of exceptional children in Canada. Special education for gifted children at both elementary and secondary levels takes the form of innovative, enriched and accelerated programs. New types of special classes are sometimes started by parents of children with a common disability, who band together to provide help and show the need for such service, which may then be taken over by public bodies. Progress in providing such education varies from province to province. It is most commonly found in the city school systems. There are six schools for the blind, 16 schools for the deaf, and a number of training schools for mental defectives. Special classes are conducted in tuberculosis sanatoria, mental hospitals and reformatories.

### Tertiary Education

**Community Colleges and Related Institutions.**—Community colleges (colleges currently listed by the Canadian Commission for the Community College as falling within the purview of that organization) and related institutions (a number of private colleges, the Nova Scotia Agricultural College, the Ontario College of Art, and Lakehead University\*) include: the College of Fisheries, Navigation, Marine Engineering and Electronics, and the College of Trades and Technology in Newfoundland; Holland College in Prince Edward Island; two institutes of technology, an agricultural college and the land survey institute in

\* Enrolments in technology programs offered by this degree-granting institution have been included, since their inception, with reports on Canadian institutes of technology and related institutes.

Nova Scotia; two institutes of technology in New Brunswick; collèges d'enseignement général et professionnel, technical institutes and related institutions, and private schools in Quebec; regionally based colleges of applied arts and technology, four colleges of agricultural technology, an art college, and Ryerson Polytechnical Institute in Ontario; three community colleges in Manitoba; two institutes of technology and St. Peter's College in Saskatchewan; three church-related institutions, two institutes of technology, five public colleges, and three agricultural and vocational colleges in Alberta; and a number of regional colleges, an institute of technology, a district college, a private college, and a church-related institution in British Columbia.

The minimum qualification for entrance into first year post-secondary programs is high school graduation or equivalent standing. Many institutions also offer a qualifying-year program to those applicants who do not meet the academic requirements; some institutions also admit those applicants ordinarily ineligible for admission by assessing them as "mature" students.

Students in community colleges receive post-secondary vocational training and, upon successful completion of a two- or three-year program, are granted a Diploma of Technology and Applied Arts, or some equivalent certificate. After course termination, students are qualified to work at a semi-professional level between that of the university-trained professional and that of the skilled tradesman. In addition, students in some community colleges can take the first one or two years of a university equivalent program and transfer to a university to complete their senior years.

Courses offered at community colleges and related institutions are very diverse, including applied arts, business and commercial, technological programs (aeronautical, architectural, chemical, etc.), and university transfer programs. The full complement of courses is not given in every province.

**Nursing Education.**—Traditionally, nurses' (R.N.) diploma courses have been conducted in hospital schools. In 1964, Ryerson Institute of Technology became the first non-hospital institution in Canada to include nurses' diploma training and since then there has been a definite trend toward giving the theoretical part of the instruction in community colleges and providing only the practical instruction in the hospitals. Several provinces offer nurses' training in non-hospital schools: Quebec, Ontario, Saskatchewan, Alberta and British Columbia.

Another trend in nursing education is a shortening of the course from three years to two, except in Quebec where the three-year training period will remain (according to present plans) with the first two years spent in CEGEPs and the third in hospital to gain "poly-technical" training.

In addition to nursing education solely at the post-secondary non-university level, students receiving their nurses' (R.N.) diploma in hospital schools may take an additional one- or two-year course or longer (depending on the institution) offered by some universities to qualify for a degree. Further, undergraduate and graduate degrees are offered to students who enter university directly from secondary school.

**Teacher Training.**—All provinces require candidates for elementary school teacher certificates to have high school completion or better, with at least one year of professional training in a faculty of education or a teachers' college. The training usually consists of professional and academic courses and some time spent in practice teaching. High school teachers are generally university graduates who have taken an additional year of professional training in a college of education, or who have graduated with a degree in education. The trend is for the government departments of education to give the universities responsibility for the training of elementary school teachers as well as secondary school teachers. In Newfoundland, Prince Edward Island, Manitoba, Saskatchewan, Alberta and British Columbia, all teacher training is conducted at the university where three or four different

courses leading to a degree are provided. About three quarters of the time is devoted to academic courses in arts and science and the remainder to professional courses.

Although the universities participate in the training of elementary-secondary teachers, teachers' colleges still exist in Nova Scotia, New Brunswick, Quebec and Ontario but are generally disappearing as independent institutions. In New Brunswick, all teacher training will take place in universities by 1972-73; in Nova Scotia, there is no plan to integrate its one teachers' college with the university, but an optional third year will be included in the program which currently requires two years after senior matriculation. The emerging pattern in Quebec is for students to first complete the two-year academic program in a *collège d'enseignement général et professionnel* (CEGEP) and then go to university for teacher training. Sixteen *écoles normales* have been absorbed by other institutions since 1969-70 and only five were in operation in 1971-72.

In Ontario in 1969-70, there were 35 normal schools and teachers' colleges, 45 faculties or colleges of education and two institutes of technology engaged in teacher training, with a total enrolment of 46,082. Most teachers in these schools are paid according to a local salary schedule based on years of training and experience. They contribute to a provincial superannuation scheme and are members of a provincial professional organization.

Two teachers' colleges in Ontario were integrated with the university system in 1969-70; it is expected that within a short time only about six colleges will remain and that enrolment in them will decline. This expected decline is based on the fact that, for almost the first time in the past ten years, some newly graduated teachers have been unable to find employment and also to the fact that admission requirements of teachers' colleges have been raised from grade 13 to completion of first year of university. It appears that only persons with a university degree will be accepted for teacher training in Ontario by 1973-74.

**University Education.**—This level of education includes universities and colleges. A university may be defined as an institution of post-secondary education, professional training and research which grants first and advanced degrees; a college is an institution with usually only one faculty granting a first degree but is more likely to be affiliated with a degree-granting university. To qualify for entrance into university, students must have high school graduation (11 to 13 years of schooling depending on the province) or equivalent standing. An applicant who lacks the usual academic qualifications may gain admittance to university after reaching a certain age by passing entrance examinations and being assessed as a "mature" student.

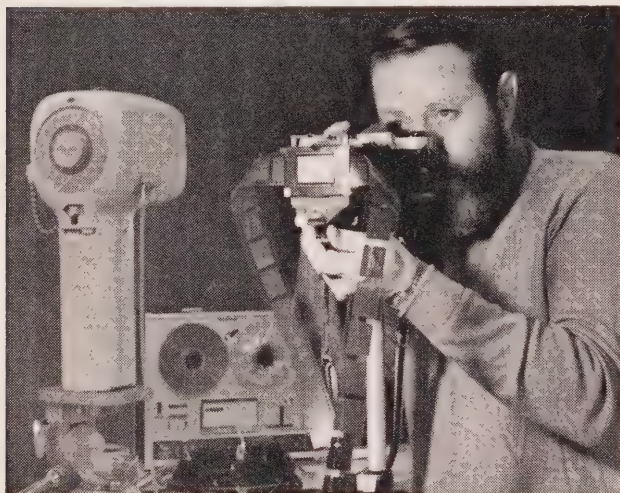
Courses of instruction ranging in duration from three to five years lead to a bachelor's degree in arts, pure science and such professional fields as agriculture, engineering, business administration, pharmacy, nursing and education. Courses in law, theology, dentistry, medicine and some other fields are longer—usually requiring for admission, completion of part or all of a first-degree course in arts or science. For those pursuing graduate studies and research, the second degree is normally the master's or licence (at least one year beyond the first degree) and the third is the doctorate (normally requiring at least two additional years beyond the second degree).

**Adult Continuing Education.**—A relatively new phenomenon in Canadian education is the growth of continuing education, sometimes referred to as adult or recurrent education. The provision of evening and summer extension and correspondence courses in a wide variety of subjects is now an important part of the education system. Diversified course offerings for adults through correspondence and extension courses are given by school boards, provincial government schools, private trade schools and business colleges, business and professional associations, community colleges and related institutions, and universities. As a result of this activity in adult education, men and women who find it impractical or impossible to attend full-time or regular classes because of business and family responsibilities, illness or inaccessibility to schools are able to pursue accreditation



at diverse educational levels or advance personal interests. Correspondence-course study offers instruction to children and adults confined to home or hospital and to inmates of Canadian correctional institutions.

School boards offer courses leading to matriculation, as well as courses involving individual and community interests. A recent survey of school boards reveals that approximately 175,000 adults are taking courses of study leading to high school completion. In addition, about 274,000 adults are enrolled in a host of general-interest courses. In community colleges, courses for adults include home economics, agriculture, business administration, fine arts and a number of technologies as well as courses in such trades as hairdressing, automobile mechanics, plumbing and construction. Universities provide credit and non-credit courses for adults on a part-time basis. Adults can gain credits toward a degree, diploma or certificate, can update their qualifications, or can pursue general interests while still fulfilling their business or homemaking responsibilities. Part-time enrolment at this level is increasing at a faster rate than full-time enrolment.



*Ontario Hydro's Nuclear Training Centre at Rolphton is designed to train the man for the job. The Centre, which has trained well over 1,000 men since its inception in 1963, has classroom, laboratory and workshop facilities for an enrolment of about 180 students.*

### **Subsection 3.—Differential Characteristics of Provincial and Territorial Education Systems**

The following paragraphs outline the administration and organization of education in all provinces and territories, emphasizing the important changes that have occurred in recent years.

**Newfoundland.**—Until recently, the system of education in Newfoundland, originally established in 1874, was strictly denominational. As a result of the recommendations of a provincial Royal Commission on Education and Youth set up in 1964, consolidation of the school systems of the major Protestant denominations has taken place but the Roman Catholic, Pentecostal and Seventh Day Adventist denominations still operate their own schools. Further reorganization occurred in 1969 when 300 denominational boards operating schools in the province reduced the number of districts to 35. The Pentecostal Assemblies and the Seventh Day Adventists each operate one "school district" which, in theory

if not in practice, embraces the whole province. The largest single denomination in the province, Roman Catholic, continues to operate its own system but recently consolidated the number of boards from over 100 to 15.

Pre-grade 1 enrolment in Newfoundland is not universal or compulsory but, with the construction of larger more centralized elementary schools, increasing numbers of five-year-olds are being admitted for instruction in kindergarten classes. The number of children in nursery schools and kindergartens run by private individuals remains quite small.

There are two major patterns of school organization in the province—elementary schools (kindergarten and grades 1-6) with central high schools (grades 7-11), and elementary schools (kindergarten and grades 1-8) with regional high schools (grades 9-11). There are only a few junior high schools (grades 7-9) in the province. The province is served by a network of 11 district vocational schools; no vocational instruction is given in the secondary schools.

Tertiary education includes both university and post-secondary non-university programs. The Memorial University in Newfoundland offers degree courses in arts and sciences, commerce and business administration, education, engineering and applied sciences, and certificate courses in public administration and banking. Post-secondary non-university education is offered at the College of Trades and Technology and the College of Fisheries, Navigation, Marine Engineering and Electronics. Nurses' (R.N.) diploma courses are conducted exclusively in hospital schools.

**Prince Edward Island.**—The trend in Prince Edward Island, as elsewhere, is away from small educational units and consolidation of such units is under way.

Kindergarten classes are not normally a part of the publicly controlled school system; enrolment in nurseries and kindergartens operated by private individuals is higher than in pre-grade 1 classes in the school system but is still quite small.

The major pattern of school organization in Prince Edward Island until junior matriculation is—elementary school (grades 1-6), junior high school (grades 7-9) and senior high school (grades 10-12); an additional pattern consists of elementary school (grades 1-8) and high school (grades 9-12). As in other provinces, Prince Edward Island is working toward a system that will eliminate "grade" promotion in favour of "subject" promotion, using a "credit" system. Five per cent of the elementary and secondary pupils receive their entire education in French and French is taught as a second language in all other schools.

The province is served by a network of 15 regional high schools offering academic programs from grades 9-12 and a one- or two-year business education course. Two vocational high schools provide a variety of four-year trade courses—a one-year orientation program followed by three years of training in a specific trade concomitant with academic instruction in language, mathematics and science.

In addition to the hospital schools of nursing, the Prince Edward Island School of Nursing, the first non-hospital school to be established in the province, offers a nurses' (R.N.) diploma program. Two new institutions were opened in Charlottetown in 1969—the University of Prince Edward Island which replaced the former Prince of Wales College and St. Dunstan's University, and Holland College which offers post-secondary vocational training.

**Nova Scotia.**—The Educational Assistance Act and certain amendments to the Education Act, both passed by the provincial legislature in 1968, enabled municipal units of an amalgamated area, in co-operation with the Minister of Education, to decide upon the composition of an amalgamated school board.

Nova Scotia is the only Atlantic Province that provides for the enrolment of five-year-old children in publicly controlled schools; perhaps as a consequence, enrolment in private nurseries has increased only slightly in recent years.

The predominant grade organization in this province is—elementary school (primary and grades 1-6), junior high school (grades 7-9), and senior high school (grades 10-12). There are a few variations in this basic school pattern, such as primary grade 6, and grades 7-12, or primary grade 9, and grades 10-12. In 1969, a modified junior high school program was authorized which gives students of average or above-average standing extra instruction in one or more subjects. High school graduation is at either the grade 11 (junior matriculation) or the grade 12 (senior matriculation) level, although enrolment in the latter is not universal in this province. As a result of revisions in the school system since 1966, 13 regional vocational schools replaced the county vocational schools. Students now attend regional vocational schools for occupational training since the secondary schools provide only business and commercial programs.

In 1969, authority was given for the award of high school equivalency diplomas to adults who had not completed high school but had improved their educational standing through job experience or informal training. Such diploma is issued on the basis of a series of tests, developed and validated over a 25-year period by the Commission on Accreditation of the American Council on Education; Nova Scotia is the first Canadian province permitted to use these tests.

Nova Scotia has two institutes of technology offering trade-level and post-secondary vocational courses, an agricultural college providing post-secondary terminal and university transfer programs, a land survey institute, and a bilingual community college which was opened in 1970 to serve the Acadian population. There are several universities and colleges offering degree programs in many disciplines. Teacher training is given in the one teachers' college and degree programs in education are offered in five universities—Acadia, Dalhousie, Mount Saint Vincent, St. Francis Xavier and St. Mary's.

**New Brunswick.**—By authority of the Schools Act, 1966 which became effective on Jan. 1, 1967, 422 school districts in New Brunswick were replaced by 33 enlarged districts. The province is divided into seven regions, each administered by a regional superintendent, and each region has from four to six districts with enrolments of between 11,500 and 34,000 pupils. Schools are strictly non-denominational. District trustees range in number from nine to 15, some elected and the remainder appointed by the Lieutenant-Governor in Council from among residents eligible to serve.

Pre-grade 1 classes are not offered in the publicly-controlled school system, except in unusual or "experimental" circumstances. Enrolment in private nurseries and kindergartens is also low in proportion to number of five-year-olds in the province.

The province has a 12-year system of public education, to junior matriculation. The most common patterns of school organization are: elementary school (grades 1-6), junior high school (grades 7-9) and senior high school (grades 10-12); and elementary school (grades 1-6) and high school (grades 7-12). Vocational courses are taught within the framework of the secondary school system and are taken concomitantly with academic instruction.

The New Brunswick Institute of Technology in Moncton and the Saint John Institute of Technology offer post-secondary vocational and technical programs. Teachers' colleges still remain in New Brunswick although there is indication that they will soon be integrated within the university system. This province has four universities offering a variety of degree programs.

**Quebec.**—In 1964, the Quebec Government, acting on recommendations of the provincial Royal Commission on Education (1961-64), passed legislation (under Bill 60) establishing a new administrative structure for the school system in that province; the Ministry of Education replaced the former Departments of Youth and of Public Instruction. Today, in addition to the Minister and Deputy Minister, the structure of the Ministry includes two Associate Deputy Ministers—one for the Catholic sector and one for the non-Catholic sector. This change of system required large increases in education expenditures



to finance the building of new schools and to acquire additional teaching personnel and materials. There are 55 French and eight regional school boards throughout the province.

Kindergarten admitting five-year-olds is now part of the school system. Registrations rose from 17,000 in 1962-63 to an estimated 118,690 in 1969-70, about 6,900 of whom were in pre-grade 1 classes in private elementary schools, and 803 were in Indian schools.

Elementary education, intended for pupils aged six to 11, is given in publicly controlled schools operated under the direction of local school boards. Since the autumn of 1968, pupils are enrolled in the first grade only if they have reached the age of six by Oct. 1. The new system calls for six years of elementary school, five years of secondary school and a collegial level to be taken in post-secondary non-university institutions. Another emerging trend is a composite course with graduated options and promotion by subject matter.

The Federal Department of Indian Affairs and Northern Development assumes full responsibility for the education of Eskimo children living in northern Quebec, and uses the curriculum established by the Ministry of Education of Quebec.

Collèges d'enseignement général et professionnel (CEGEPs), inaugurated at the beginning of the 1967-68 school year, replaced many of the former classical colleges, normal schools, schools of nursing and technical institutes. These colleges, currently numbering about 40, admit students graduating from grade 11 and offer three-year terminal technical programs and two-year academic programs which are pre-requisite for university entrance. Private or classical colleges offer the equivalent of the two-year university transfer program offered in the CEGEP, at the end of which successful students receive a *diplôme d'études collégiales*. Students may, however, continue at these establishments and work toward a degree granted by the university to which the college is affiliated.

In 1969-70, there was only one English-language CEGEP in operation, although two of the French-language colleges provided some programs in English. Other English-language colleges are planned but, in the meantime, English-language universities provide two college years preceding the three-year university program. In 1969-70, the number of students that may have followed the academic program at an English-language CEGEP, had schools been in existence, were enrolled as follows: McGill University 2,412, Sir George Williams University 1,586 and Bishop's University 261. In addition, two English-language non-degree-granting colleges whose faculties of arts are affiliated with the Université de Montréal, offer the equivalent two-year CEGEP programs.

Teachers' colleges still exist in Quebec but the trend is for teacher training to be given in the universities after completion of the academic program in the CEGEP.

There are several universities and colleges located in Quebec that offer a wide variety of degree, diploma and certificate programs.

**Ontario.**—Under recent amendments to the Ontario School Act, county districts have replaced former individual units that were administered by three-member boards of trustees. The larger cities, such as Toronto and Ottawa, are excluded and operate their own school systems. Roman Catholic schools are given a choice. In most of Ontario the separate administration of elementary and secondary schools has been abolished and these schools are now administered by the same board. With each county administered by one board, there has been a drastic reduction from thousands of districts to about 200. An important amendment to the Act in 1969 provides for schools for trainable retarded children to be established under the jurisdiction of a special divisional board of education.

Ontario has a 13-grade system (senior matriculation) with provision for kindergarten and pre-school enrolment. The predominant pattern of school organization is—elementary school (kindergarten, grades 1-8) and secondary school (grades 9-13). A variation in this organization is the 6-3-4 pattern—elementary school (kindergarten, grades 1-6), junior high school (grades 7-9) and senior high school (grades 10-13).

One of the latest developments is the employment of a "credit system" to cover the former grades 9-12 leading to the secondary school graduation diploma. This will provide more flexible schedule patterns with a view to greater freedom of student choice within an expanding range of subject offerings, even to the creation of "individual timetables" for students. A credit is defined as a course successfully completed, normally after 110 to 120 hours of scheduled time. The diploma (grade 12 standing) is awarded after the successful completion of a minimum of 27 credits.

High schools in this province offer double-option trade courses in the science, technology and trades programs, and double-option business courses in the business and commerce programs. There is also a two- or three-year occupational program to which some students may voluntarily return for a fourth year. There are also special one-year commercial and technical programs that follow grade 11 or 12.

In Ontario at the beginning of the 1967-68 school year, the former institutes of technology and the provincial vocational centres were incorporated into colleges of applied arts and technology known as CAATs. These colleges were set up in 20 regions to serve the needs of the communities at both the post-secondary and the occupational levels. While the CAATs were not designed to accommodate prospective university transfer students, the universities do accept first-class graduates from the two- or three-year post-secondary programs into the first and second year degree courses respectively. On Oct. 1, 1971, these institutions became the responsibility of the newly formed Department of Colleges and Universities, as did Ryerson Polytechnical Institute and other related cultural institutions. In addition to the Regional Schools of Nursing, the Ryerson Polytechnical Institute and a few CATTs offer nurses' (R.N.) diploma programs.

Eleven independent teachers' colleges existed in Ontario in 1969-70 but it is assumed that a number of these will soon be integrated with the university system.

There are over twenty universities and colleges in this province offering a diversified program of courses leading to degrees, diplomas and certificates.

**Manitoba.**—As of Jan. 1, 1969, 93 p.c. of public school enrolments in Manitoba came under the administration of 39 unitary division boards responsible for all public elementary and secondary education within their jurisdictions. For the remaining enrolments, division boards are responsible for secondary education and smaller district boards for elementary education. The few non-unitary boards in operation in the 1969-70 school year had the option of amalgamating on a voluntary basis.

Public kindergarten classes are available in most elementary schools in Manitoba. Enrolments have almost tripled in the past 10 years as these facilities have been expanded and the number of children in private nurseries and kindergartens has consequently declined.

There are two major patterns of school organization in the 12-grade system to senior matriculation—elementary (kindergarten and grades 1-8) and high school (grades 9-12), or elementary (kindergarten and grades 1-6), junior high school (grades 7-9) and senior high school (grades 10-12). Increased emphasis is being placed on open-area classrooms, higher qualifications for teachers, and improved curricula. Other innovations in the elementary and secondary schools include: more meaningful curricula for Indian and metis children now incorporated into regular classes; emphasis in health programs in relation to alcohol and narcotics; audio-lingual programs in French and German at grade 10 level; and emphasis on continuous testing to replace formal examinations and on the concept of "independent study" for students in some secondary schools. Final examinations are set and marked under the auspices of the High School Examination Board of Manitoba. Entrance to university requires evidence of Board standing in at least three subjects with school standing acceptable in two other subjects.

In Manitoba, vocational students may take either a pre-employment commercial or industrial program the successful completion of which entitles them to an "academic



*The Ottawa Board of Education's TV production centre produces about 100 shows a year for both local school consumption and distribution outside the Ottawa area, and these together with a library stock of more than 1,000 films and tapes provide a wide range of material to supplement classroom teaching. All Ottawa elementary and most of the high schools are wired for cable.*

transcript". Alternatively, students may complete the university entrance program and continue for an additional year in a special commercial program, or those following the industrial program may spend half their time in the university entrance program. There is also an occupational entrance program commencing at grade 7 and continuing until grade 10 or 11, during which period students receive part of their training on the job in business or industry.

The Manitoba Institute of Technology and Applied Arts and the two vocational centres at Brandon and The Pas were designated as community colleges in the fall of 1969. They are now called Red River Community College, Assiniboine Community College and Keewatin Community College, respectively. These institutions offer vocational courses and although they make no provision for university transfer students, graduates have in some cases been granted transfer credits.

Teacher training is offered only at the university level in this province. Seven colleges and universities are located in Manitoba offering degree programs. The largest—the University of Manitoba—offers a wide range of courses including arts and science, law, medicine, education, applied sciences, architecture and many others.

**Saskatchewan.**—Many schools in the larger centres of Saskatchewan are now offering kindergarten education, although elsewhere in the province such classes are not normally



available. In fact, the proportion of five-year-olds attending pre-grade 1 classes within the publicly controlled school system has increased from about 15 p.c. of the five-year-old population in 1960-61 to 22 p.c. in 1969-70.

The traditional 12 elementary-secondary grades have been replaced by four Divisions, each consisting of three years of school for a student making normal progress. In Divisions I and II, the principle of non-grading, involving the ideas of continuous progress and flexible promotion, has been adopted. Division III programs have been planned to meet the special needs of pupils in the 13-15 age group faced with the problems of emerging adolescence. Division IV is undergoing major changes in the total scope of courses offered and in the content and methods used within particular subject areas. Recent amendments to the Saskatchewan School Act allow for the exclusion from the regular system of non-rehabilitative children. Educable handicapped children attend special classes in regular schools; blind and deaf children between seven and 16 years of age are educated in special schools.

In Saskatchewan, vocational subjects may be taken in the general, industrial arts, commercial or special terminal programs, none of which qualify the student for university entrance. Vocational courses in the high schools were set up with a view to providing a closer articulation between those schools and the technical institutes. Most of the vocational students in grade 9, apart from those in the commercial course, take five shops not associated with any one specific trade; similarly, students in grade 10 may take two shops. The Saskatchewan Institute of Applied Arts and Sciences and the Saskatchewan Technical Institute offer vocational courses only at both levels. These two schools have taken over the total responsibility for the nurses' (R.N.) diploma program, and during 1969-70 there remained only four hospital schools.

St. Peter's College, a church-related institution affiliated with the University of Saskatchewan, offers the first year of the university program for prospective transfer students. The University of Saskatchewan, at both the Regina and Saskatoon campuses, offers degree programs in education. Several universities are located in Saskatchewan offering a wide range of degree programs; the University of Saskatchewan (Saskatoon campus) is the largest.

**Alberta.**—Education in Alberta is under constant review by the province's Commission on Educational Planning, charged with the broad task of predicting what Alberta society will be like educationally, socially and economically during the last decades of the twentieth century. Innovations in recent years in the elementary-secondary level include: extensive experimentation in programs carried out at the local school level; the use of French as the language of instruction during 50 p.c. of the school day in grades 3 to 12 in certain schools; construction of modern buildings incorporating the latest design in instructional facilities; movement toward the semester system and other methods of dividing the school year; and implementation of school television projects. The Province of Alberta is organized into divisions for purposes of education and each division is administered by its own school board.

Kindergarten classes within the regular school system are not offered in this province except in a few experimental cases. A substantial number of children, however, are enrolled in nursery schools and kindergartens operated by private individuals.

The two predominant patterns of school organization in Alberta are—elementary school (grades 1-6), junior high school (grades 7-9) and senior high school (grades 10-12), or elementary school (grades 1-8) and high school (grades 9-12). Alberta operates its secondary schools on the composite or comprehensive principle. Most of the wide range of vocational programs conducted are offered in grades 10-12. In grade 12, some of the vocational courses lead to the granting of 15-20 credits, of which 100 are required for an Alberta High School Diploma.

In the fall of 1971, a new Department of Advanced Education was formed, separate from the Department of Education. This department is responsible for universities, public

colleges, institutes of technology and the agricultural and vocational colleges formerly under the jurisdiction of the Department of Agriculture. The five public colleges, previously known as "junior" colleges, the two institutes of technology and the three agricultural and vocational colleges, all offering vocational programs at the post-secondary level, are now part of the community college system.

Programs at the first- or second-year university level are provided at three church-related institutions—Camrose Lutheran College, the bilingual Collège St. Jean and the Canadian Union College which also offers two-year terminal vocational studies in secretarial science. Nurses' (R.N.) diploma programs are at present given at both hospital schools and three community colleges—Lethbridge, Mount Royal and Red Deer.

One large university—the University of Alberta—has a diversified course-offering including fine and applied arts, arts and science, medicine, dentistry, pharmacy, nursing, household science, engineering and applied sciences, agriculture, library science, law and education. The province also has two medium-sized universities—the University of Calgary and the University of Lethbridge—and three small colleges.

**British Columbia.**—Details of education programs in British Columbia are similar to those of the most advanced programs in the other provinces. Its central organization of divisions and services includes curriculum, instruction, adult education, university and college affairs, research and standards, home economics, correspondence courses, school broadcasts, visual education, technical and vocational education, community programs, Jericho Hill School for the deaf and blind, and examinations.

Some school districts provide kindergarten classes. In 1969-70, about 57 p.c. of the five-year-old population was enrolled in pre-grade 1 classes in the publicly controlled elementary schools and enrolments in privately operated nursery schools and kindergartens were also quite substantial.

British Columbia's former 13-year system of education culminating in senior matriculation is being replaced with a 12-year system but the senior matriculation year is still available in universities, in some of the regional colleges and in some high schools. The predominant pattern of school organization is—elementary school (grades 1-6), junior high school (grades 7-9) and senior high school (grades 10-12). Five of the six programs offered in grades 11 and 12 are vocationally oriented—commercial, industrial, community services including home economics (not specifically labour-force-oriented), visual and performing arts, and vocational. There are a substantial number of pupils enrolled in special classes, such as those for educable retarded, blind or deaf children. In most school districts, the less severely handicapped receive special instruction in regular schools but the more severely handicapped are taught in special schools under government or private operation.

Ten community colleges and the British Columbia Institute of Technology have been established since 1965. The colleges, operated by consortiums of school boards, enable residents of a particular geographic area to take the junior years of university or a terminal vocational course. The Vancouver City College is operated by the Vancouver School Board only, and the British Columbia Institute of Technology, which offers post-secondary vocational programs only, is operated by the Provincial Department of Education. Trinity Junior College is a church-related institution which provides the first two years of university. The Columbia Junior College, a private non-denominational institution located in Vancouver, offers a terminal career course in Fashion Design as well as university transfer programs which are recognized by the University of British Columbia.

In addition to the hospital schools of nursing, the British Columbia Institute of Technology offers the nurses' (R.N.) program and the Vancouver City College provides specific training in psychiatric nursing.

The largest degree-granting institution in the province—the University of British Columbia—has faculties of architecture, law, medicine, applied sciences, education, arts and sciences and others. A major development for the 1970s, based on the report of the Commission on the Future of the Faculty of Education, is the revision of the academic

program and administrative structure of this university's Faculty of Education. Among the 85 recommendations are such innovations as the adoption of a single five-year Bachelor of Education program, introduction of the "teaching associate" idea, a new Master of Pedagogy degree, and student participation in decision-making at the operational level. There are two smaller universities—Victoria and Simon Fraser—in operation in British Columbia and a number of small colleges, most of them church-related.

**Yukon Territory.**—The Yukon Territory School System is administered by the Yukon Department of Education and operated through a superintendent and staff at Whitehorse, appointed by the Territorial Government and responsible to the Commissioner of the Territory. Schools in the Yukon have always been publicly controlled, except for the Federal Indian Residential School at Carcross which closed before the 1969-70 school year. In 1969-70 enrolment in the 23 schools was 4,090.

**Northwest Territories.**—The Northwest Territories school system, consisting of the Districts of Mackenzie, Franklin and Keewatin, is now operated by the newly established Department of Education of the new Territorial Government. The official transfer of responsibility for education from the federal Department of Indian Affairs and Northern Development to the Territorial Department of Education occurred in April 1969 in the Mackenzie District and April 1970 in the Franklin and Keewatin Districts; 58 schools were taken over by the Territorial Department of Education and came under public control. Total enrolment in 1969-70 was 8,192.

The Territorial Department of Education is continuing the work done in the past by the Department of Indian Affairs and Northern Development, and is providing educational opportunities for northern residents equivalent to those enjoyed by citizens in Southern Canada. New schools have been constructed at Edzo, Frobisher Bay, Baker Lake, Cape Dorset, Coral Harbour and Clyde River and an education curriculum has been developed relevant to the cultural heritage of Eskimo, Indian and metis students, who comprise the majority of pupils in the schools. The Department, with the assistance of the Department of Indian Affairs and Northern Development, is initiating the collection of stories and legends of the Dogrib people and a Dogrib grammar and dictionary are being produced.

#### **Subsection 4.—Financing Education**

Of the total expenditures on education across Canada amounting to \$5,800,000,000 in 1968-69, local governments contributed 26 p.c., provincial governments 45 p.c., the federal government 21 p.c. and the remaining 8 p.c. originated from private sources.

#### **Financing Education at the Elementary and Secondary Levels**

The magnitude of the elementary-secondary sector of education is most clearly evident when expressed in dollars. In 1968-69 and 1969-70, total expenditures at this level were in excess of \$3,750,000,000 and \$4,250,000,000, respectively, these amounts representing over 65 p.c. of all expenditures for all education in Canada. In the later year expenditure on elementary and secondary education was nearly two and a half times greater than the amount spent by the Department of National Defence.

The actual operation of public elementary and secondary schools is in the hands of the local elected or appointed school boards which determine the budgets and therefore the amount of taxes required for school purposes. In most cases, these taxes are levied and collected for the boards by the municipalities; however, in those areas where there is no municipal organization the school boards have the power to levy and collect taxes for school purposes. In 1968-69, local governments provided 39 p.c. of the cost of operating the public schools, provincial governments provided 51 p.c. and the remainder was obtained from various other sources. Except in Newfoundland, fees are almost non-existent. Four provinces—British Columbia, Alberta, Manitoba and Nova Scotia—pay operating grants



on an equalization formula and thus ensure at least a minimum level of education throughout the province. The standard is determined either in terms of so much per pupil, or from an established salary scale for teachers with a prescribed teacher-pupil ratio, or by some combination of these.

In Newfoundland where municipal organization scarcely exists outside certain larger centres, there are three school-tax areas. In Prince Edward Island where there is no municipal organization outside of the cities of Charlottetown and Summerside, the school boards levy and collect property and poll taxes but the province provides about two thirds of the operating costs. Ontario and Saskatchewan make use of various equalization and incentive grants. On Jan. 1, 1967, the New Brunswick Government introduced a Program of Equal Opportunity under which it assumed full responsibility for public education and other social services. Consequently, in the following year, 98 p.c. of the revenue used for public education was derived from provincial taxes (real property and sales taxes); the remaining 2 p.c. came from miscellaneous sources. Most provinces provide grants for school buildings and equipment, establish loan funds, and guarantee debentures for school purposes and assist in selling them.

**Developments in Financial Information.**—The problems associated with the creation of a financial reporting system which ensures comparability between the provinces and timeliness of output are considerable indeed. However, events have now moved forward to the point where reasonably accurate comparable cost-per-pupil data for each of the provinces at the elementary-secondary level are available. Differences in accounting procedures do create difficulties but, for the most part, can be coped with. It must be remembered that the numbers of students being dealt with in all cases is extremely large, and the expenditure items on which consistency is difficult to achieve across all provinces are always relatively minor in relation to the provincial total.

In the past, reliance was placed entirely on audited statements and published public accounts for all data; this resulted in delays that sometimes exceeded 30 months between the termination of an academic year and the publication of national information on schooling costs in Canada. Happily, this situation is at an end. Provincial departments of education have been extremely co-operative and are now providing budgets and other information which will have the effect of making financial estimates available at the same time as enrolment statistics.

The determination of accurate educational costs on a current basis has enabled the Federal Government to provide significant sums of money (\$50,000,000 in 1970) to the provinces to further the aims of bilingualism and biculturalism. A fixed percentage of the cost-per-pupil of elementary-secondary education is paid to each province, based on their costs, for the amount of minority language education provided and the time devoted to teaching the second language.

The importance of adequate statistics in order to plan and maintain a program of education support cannot be over-emphasized. An excellent data base already exists and it is constantly undergoing a process of refinement and improvement. The use of education statistics in order to establish and maintain programs designed to meet national and regional aims is now a genuine possibility, and could be put to immediate use.

Finance data (along with enrolment and teaching staff statistics) form an integral part of a developing nation-wide information system which was initiated by the Council of Ministers of Education in Canada but has been carried on by the Education Division of Statistics Canada since 1969. In addition, other initiatives have been taken which will have the effect of rounding out the statistical picture. A new survey is being undertaken (late 1971) on school transport which will provide national and provincial data on a number of aspects of this particular education phenomenon, little of which has ever been available. Recent moves in nearly all provinces to consolidate both administrative and education services into large units have resulted in significant increases in pupil transportation services which, it appears, now require from 3 p.c. to 10 p.c. of school board budgets.

### Federal Contributions to Education

Universities and colleges currently receive more than 80 p.c. of their operating funds from the federal and provincial governments. Private schools and colleges are normally supported by student fees, endowment income, gifts and income from sponsoring bodies.

In 1969-70, Federal Government expenditures on education amounted to \$1,329,000,000 including \$530,000,000 transferred to provinces under the terms of the Federal-Provincial Fiscal Arrangements Act. In addition, some \$203,000,000 was spent at the university level and expenditures on non-university post-secondary education, including vocational training, amounted to \$401,000,000. Finally, direct expenditures by the Federal Government on elementary-secondary education and teacher training accounted for \$195,000,000.

Some 60 Federal Government departments and agencies contribute to education in one way or another. As stated previously, the Federal Government has no responsibility for the organization and administration of education. It has, however, a vital interest in the quantity and quality of education, the skills of the population and the extent of scientific research carried on in Canada, realizing the effect of these on the national economy and on individual and social development.

During the past few years, federal support to education has undergone significant change. The total federal contribution to education has increased substantially and the form of this support and the method of its distribution have been altered in certain key areas. The most important of these included the discontinuation of the payment of operating grants directly to universities and the extension of financial support to post-secondary institutions; the assumption by the Federal Government of the full cost of the vocational training of adults under the Adult Occupational Training Act; and the recognition of the need for increased grants for specific research projects undertaken by individual professors and other researchers at universities.

As a result of the federal-provincial conference of October 1966, the Federal Government undertook to provide increased support to education. Recognizing that education is a provincial responsibility, it decided to discontinue payment of operating grants directly to universities and to expand its support beyond university education and include in its program all, or almost all, post-secondary education, i.e., the educational institutions and courses requiring for admission at least junior matriculation, or its equivalent, in each province. The provinces were offered the choice of either a federal grant amounting to \$15 per head of population or 50 p.c. of operating costs of post-secondary education, whichever was greater. Implementing this proposal, Parliament passed, in March 1967, the Federal-Provincial Fiscal Arrangements Act, under the terms of which certain percentages of federal revenue plus required cash were to be transferred by the federal Treasury to the provinces commencing with the 1967-68 fiscal year, and to continue for five years. The financial resources transferred to the provinces for 1967-68 are estimated at \$400,600,000, those for 1968-69 at over \$500,000,000 and those for 1969-70 at about \$620,000,000.

In 1967, the federal-provincial agreements for the training of the unemployed, concluded under the Technical and Vocational Training Act of 1961, were allowed to expire and the Adult Occupational Training Act was passed under which the Federal Government takes full responsibility for financing the cost of training adults who are or should be in the labour force. The cost of providing primary, secondary and post-secondary education remains a provincial responsibility. If, in the opinion of a manpower counsellor, it is in the best interest of the individual and of the economy for an adult to undertake training or re-training, it will be purchased by the Federal Government from a public or private training institution or from industry. The program also provides for the payment of allowances to persons who have adult economic responsibilities to enable them to take training but it intentionally avoids the payment of such allowances to youth whose education should normally be provided by the province. Adult trainees who have been three years in the labour force, which includes periods during which employment was being sought, or those

who have dependants, are paid these allowances, which range from \$47 to \$113 a week. Total expenditures by the Federal Government for this purpose amounted to \$245,046,545 in 1969-70 and \$289,576,785 in 1970-71.

The Capital Assistance Program, begun in 1961 to provide assistance to provinces for building and equipping occupational training facilities, was continued by the Adult Occupational Training Act of 1967 but a limit was set on the total amount payable to each province. By Mar. 31, 1971, the Federal Government had contributed nearly \$1,100,000,000 toward costs incurred by the provinces for this purpose. In 1970, in order to speed up the construction of needed training facilities and aid the provinces with their cash management problems, the Federal Government and the provinces agreed to an accelerated phase-out of the program. Under this arrangement, the provinces were to receive the remainder of their entitlements in 1970-71 and 1971-72, to be spent in vocational training facilities by Mar. 31, 1975. A total of \$170,298,261 was paid to the provinces in 1970-71 under the phase-out and the normal procedures.

Under the Canada Student Loans Act (RSC 1970, c. S-17), full-time students may borrow up to \$1,000 annually, interest-free for five years, the \$5,000 or less to be repaid with interest commencing six months after the student has graduated.\* Provision is made for the allocated amount to be increased year by year in proportion to the number of persons 18-24 years of age in the population. The purpose of the loan plan is to assist those students who, for financial reasons, would otherwise be prevented from getting a post-secondary education or would not be able to devote full time to their studies. These loans may be made only on the basis of certificates of eligibility issued by the participating province through the university or institute of technology concerned. There is no upper or lower age limit for eligibility. The loan scheme is operated by the chartered banks, the Federal Government guaranteeing the loans and paying the interest while the student is attending college. All provinces except Quebec participate; Quebec offers its own student assistance program for the benefit of Quebec residents.

The Act provides for basic allocations for each province and also for supplementary allocations to compensate for differences in relative demand as between provinces, based on provincial population in the 18-24-year age group. The basic allocations for the year 1969-70 for participating provinces totalled \$69,500,000 with authority for discretionary allocations up to \$16,148,000, making a total maximum of \$85,648,000 authorized under the Act. Loans actually authorized amounted to \$77,709,000. In addition, federal payments to lending institutions in respect of interest on outstanding loans and other operational expenses amounted to \$17,543,000.

In 1966, the Federal Government inaugurated a program of massive financial support to the provinces for the purpose of providing badly needed facilities for training professional personnel in health services, to be administered by the Department of National Health and Welfare. The Health Resources Fund Act (RSC 1970, c. H-4) provides for the establishment of a fund to assist financially in the planning, acquisition, construction, renovation and equipping of health training facilities, defined to mean any school, hospital or other institution for the training of persons in the health professions or any occupations associated with the health professions, or for the conducting of research in the health field, but excluding any residential accommodation. The Fund was established in the amount of \$500,000,000 to be applied to costs incurred between Jan. 1, 1966 and Dec. 31, 1980; of that amount, \$400,000,000 is available to the provinces on a per capita basis, \$25,000,000 is available to the four Atlantic Provinces for joint projects, and \$75,000,000 remains to be allocated by the Governor in Council. Contributions are payable to the provinces in amounts of up to 50 p.c. of the costs of the projects approved by the Minister's Advisory Committee as part of a five-year plan for the development of health training facilities in a province.

During the five years of operation of this program, 1966-67 to 1970-71, the Federal Government paid \$143,156,000 to the provincial treasuries in respect of approved projects. The projects financed under this program involved training facilities in universities or

\* At the time of writing (December 1971) an announced increase in the maximum annual loan from \$1,000 to \$1,400 and in the total loan from \$5,000 to \$9,800 was awaiting approval by Parliament.



institutions connected with, or operated by, schools of medicine, schools of nursing, including new regional schools of nursing in Ontario, and schools for nursing assistants, as well as facilities for vocational types of training at the higher educational levels.

The Federal Government through the Canada Council in 1957 provided an amount of \$100,000,000, half of which was to be distributed among the universities for specified building and equipment purposes, similar to the distribution of grants. Interest from the remaining \$50,000,000 was to be used to assist in the development of the arts, humanities and social sciences, mainly through scholarships (see pp. 424-425).

Other contributions are more indirect and include scholarships, research grants and reports or services of value to the schools. Research grants are made by the National Research Council, the Defence Research Board, the Department of National Health and Welfare, the Department of Manpower and Immigration and other agencies. Some Departments, such as Agriculture, Health and Welfare, etc., provide materials and publications of value in the school programs, and the National Museums of Canada, including the National Gallery, the National Film Board and the Canadian Broadcasting Corporation contribute directly or indirectly to various school programs.

More directly, the Federal Government is responsible for the education of Indians on reserves, prisoners in penitentiaries, members of the Armed Services and their dependants and in-service training for permanent personnel. It also assists in citizenship training and other out-of-school informal education activities.

#### External Education Assistance

The Canadian International Development Agency is responsible for the operation and administration of the technical assistance program offered by the Canadian Government to developing countries. Its activities are outlined at pp. 202-203.



*Many countries are represented in this seminar session at the Coady International Institute of St. Francis Xavier University, Antigonish, N.S., which is the headquarters of one of the western world's most effective programs of social and economic assistance to people of the developing nations.*

### Section 3.—Statistics of Schools, Colleges and Universities

The first two tables of this Section give summary statistics of education at elementary, secondary and tertiary levels. Changes in enrolments at the three levels between 1960-61 and 1970-71 are shown in Table 1 and detailed data on numbers of schools, teachers and enrolment in the different types of institutions in each province and the territories are presented in Table 2, pp. 398-400.

#### 1.—Full-Time Enrolment in Schools, Colleges and Universities, by Level, School Years 1961-62 to 1970-71

School Year	Elementary and Secondary Schools (Public, Private and Federal)			Post-Secondary			Grand Total Enrolment
	Elemen- tary Grades	Secondary Grades	Total	Non- univer- sity <sup>1</sup>	Univer- sity	Total	
	'000	'000	'000	'000	'000	'000	'000
1961-62.....	3,515.2	893.5	4,408.7	64.7	128.9	193.6	4,602.3
1962-63.....	3,604.8	983.2	4,588.0	70.5	141.4	211.9	4,799.9
1963-64.....	3,709.1	1,068.1	4,777.2	74.1	158.4	232.5	5,009.7
1964-65.....	3,818.2	1,149.6	4,967.8	74.0	178.2	252.2	5,220.0
1965-66.....	3,914.2	1,203.6	5,117.8	84.3	205.9	290.2	5,408.0
1966-67.....	4,013.5	1,254.6	5,268.1	94.0	232.7	326.7	5,594.8
1967-68.....	4,127.5	1,324.7	5,452.2	111.2	261.2	372.4	5,824.6
1968-69.....	4,150.4	1,428.0	5,578.4	151.9	270.1 <sup>2</sup>	422.0	6,000.4
1969-70.....	4,203.2 <sup>3</sup>	1,558.2 <sup>4</sup>	5,761.4	181.5	299.9	481.4	6,242.8
1970-71.....	4,060.6 <sup>3</sup>	1,756.8 <sup>4</sup>	5,817.4	..	..	..	..

<sup>1</sup> Includes enrolments in teachers' colleges, diploma schools of nursing, community colleges and other non-university institutions; enrolments for Quebec are estimated. <sup>2</sup> Enrolments for Quebec and British Columbia are estimated. <sup>3</sup> Refers to kindergarten and grades 1-8, inclusive, and elementary ungraded. <sup>4</sup> Refers to grades 9-13, inclusive, and secondary ungraded.

#### Subsection 1.—Enrolments

##### Elementary and Secondary Enrolment

Elementary and secondary school enrolment increased 37 p.c. in the 10-year period 1960-61 to 1969-70; enrolment at the elementary level was 23 p.c. higher and at the secondary level 97 p.c. higher. During that period, the annual rates of increase for total elementary and secondary enrolment ranged from 2.3 p.c. to 4.9 p.c.; in comparison, the annual rates of increase in the country's population ranged from 1.5 p.c. to 2.1 p.c. This upsurge in numbers of students resulted from the high birth rates that prevailed during the war and immediate post-war years. However, the lower elementary school enrolment, by over 140,000 pupils, in 1970-71 compared with 1969-70 may be the first indication of the decline in number of elementary school pupils that was expected to begin in the early 1970s as a result of the low birth rates of the mid-1960s. On the other hand, secondary school enrolments are growing almost without exception in every province as the high volume of pupils attending elementary school in the 1960s moves into the higher grades. This increase is also related in part to the fact that students are staying in school longer and larger numbers of them are planning to go on to some form of post-secondary education. In addition, the greater diversification of courses offered which better prepare students for entry into

2.—Schools, Teachers and Enrolment,<sup>1</sup> by Level, Type of Institution and Province, 1969-70

Item	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T. and N.W.T.	Canada
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
<b>Elementary and Secondary Education</b> <sup>2</sup>												
Publicly Controlled— <sup>3</sup>												
Schools.....	893	266	741	616	3,500 <sup>4</sup>	4,923	793	1,047	1,254	1,477	81	15,591
Teachers.....	6,315	1,486	9,443	7,822	70,700 <sup>4</sup>	89,929 <sup>4</sup>	11,194	11,553	19,521	20,815	775	249,853
Students.....	159,933	29,531	212,868	173,642	1,590,112 <sup>4</sup>	1,985,306	245,363	249,727	413,576	512,871	12,282	5,585,211
Federal— <sup>5</sup>												
Schools.....	—	1	4	7	35	78	38	53	26	49	—	291
Teachers.....	—	4	24	26	188	278	240	174	174	159	—	1,267
Students.....	—	65	506	620	4,402	6,605	5,938	3,430	3,553	3,491	—	28,610
Blind—												
Schools.....	—	—	1	—	3	1	—	—	—	1	—	6
Teachers.....	—	—	29	—	52	42	—	—	—	18	—	141
Students (home province).....	31	6	74	50	236	209	18	19	26	57	1	728 <sup>6</sup>
Deaf—												
Schools.....	1	1	1	—	5	3	2	1	1	1	—	16
Teachers (full and part-time).....	21	3	58	—	169	216	29	27	24	31	—	578
Students.....	133	16	189	116	952	1,281	183	169	117	222	12	3,394 <sup>7</sup>
Private—												
Schools.....	4	1	12	5	610 <sup>4</sup>	242	48	17	33	130	—	1,102
Teachers (full and part-time).....	59	6	159	40	3,500 <sup>4</sup>	3,316	532	141	317	1,260	—	9,330
Students.....	553	70	2,125	353	51,700 <sup>4</sup>	43,007	8,178	1,854	5,342	22,359	—	135,541
<b>Vocational and Technical Education</b> <sup>8</sup>												
High Schools—												
Schools offering vocational programs.....	3 <sup>9</sup>	7	50 <sup>9</sup>	54	..	..	65	17	64	137	6	..
Students.....	238	863	2,541	10,613	..	..	8,599	5,010	23,173	23,506	507	..
Public Trade Schools and Vocational Centres— <sup>10</sup>												
Institutions.....	15	5	16	14	..	27	3	5	14	11	2	..
Students.....	6,654	2,552	11,921	5,226	..	80,422	6,100	5,711	7,339	16,809	427 <sup>11</sup>	..
Private Trade Schools—												
Institutions.....	12	—	11,113	5	..	61	9	8	36	38	—	..
Teachers (full and part-time).....	12	—	24,113	10	..	386	35	31	86	135	—	..
Students (full and part-time).....	12	—	1,173,113	89	..	4,553	498	430	1,040	3,302	—	..



Private Business Colleges— Institutions..... Teachers (full and part-time)..... Students (full and part-time).....	1	12	1	5	4	..	25	5	7	6	8	..
	12	12	12	28 <sup>14</sup>	21	..	136	41	53	30	37	..
	12	12	12	733 <sup>14</sup>	545	..	5,259	1,704	1,252	986	2,021	..
Nursing Assistant Schools— Institutions..... Students.....	4	26	1	6	6	20	63	2	1	1	6	110
	248	26	26	285	212	630	2,442	330	207	571	527	5,478
Diploma Schools of Nursing— Institutions..... Teachers..... Students <sup>15</sup> .....	4	4	4	12	11	67	72	6	5	16	7	204
	53	23	23	110	105	568	1,078	123	92	224	136	2,522
	687	177	177	1,007	972	7,085	9,969	1,338	825	2,208	1,642	25,910
Community Colleges and Re- lated Institutions— <sup>16</sup> Institutions..... Teachers..... Students.....	2	1	1	5	2	34	33	3	2	11	8	101
	80	8	8	81	62	20,919	2,548	107	92	653	277	790
	756	96	96	794	525	20,919	32,723	1,540	1,488	6,727	3,549	14,906
Teacher Training— Teachers' Colleges— Institutions..... Teachers..... Students <sup>17</sup> .....	—	—	—	1	2	21	11	—	—	—	—	35
	—	—	—	57	81	317	341	—	—	—	—	790
	—	—	—	724	1,192	5,560	7,430	—	—	—	—	14,906
Faculties of Education— Faculties..... Teachers..... Students.....	1	1	1	5	3	10	4	2	12	3	4	45
	41	8	8	43	48	365	419	92	138	303	300	1,757
	1,830	122	122	756	364	5,058	3,723	1,671	3,873	7,515	6,264	31,176
Universities and Colleges— Institutions <sup>18</sup> ..... Teachers <sup>19</sup> ..... Students (university grade) <sup>20</sup> .....	1	1	1	9	4	7	23	7	6	6	8	72
	422	120	120	1,044	707	5,453	8,367	1,144	1,099	1,920	2,238	22,514
	5,157	1,566	1,566	14,311	9,608	66,830	108,825	16,597	14,973	28,551	33,471	299,889

<sup>1</sup> Full-time enrolment, except where otherwise indicated. <sup>4</sup> Estimate. <sup>5</sup> Day, residential and hospital schools administered by the federal Department of Indian Affairs and Northern Development. <sup>6</sup> Includes one student from outside Canada. <sup>7</sup> Includes four students from outside Canada. <sup>8</sup> Numbers of teachers are not available for some categories. <sup>9</sup> With commercial course only. <sup>10</sup> Excludes adult vocational centres set up temporarily in connection with special programs. <sup>11</sup> Northwest Territories residents are trained in establishments outside the Territories. <sup>12</sup> Included with Nova Scotia. <sup>13</sup> Includes one school in Newfoundland. <sup>14</sup> Includes one school in Newfoundland and one in Prince Edward Island. <sup>15</sup> As some community colleges and related institutions include nurses' (R.N.) diploma programs, a number of students have been reported in both the Diploma Schools of Nursing and the Community Colleges and Related Institutions categories. <sup>16</sup> Includes institutions offering vocational and technical programs only; excludes student enrolments in university transfer programs in community colleges in Saskatchewan, Alberta and British Columbia totalling 31,359, 50,183 and 3,655, respectively. <sup>17</sup> Also included in the degree-granting institution category. <sup>18</sup> The 50-odd community colleges affiliated with universities are not included in reporting total number of degree-granting institutions. <sup>19</sup> Includes estimates for non-reporting institutions. <sup>20</sup> Includes total numbers in universities and affiliated colleges.

the labour force and which more adequately fulfil the needs of the community, as well as the greater accessibility to further education, appears to affect school retention rates. Table 3 shows enrolment in all elementary and secondary schools in Canada and in National Defence schools overseas in 1969-70.

**3.—Enrolment in Elementary and Secondary Public, Private and Federal Schools,  
by Grade and by Province, School Year 1969-70**

Grade	Nfld.	P.E.I.	N.S.	N.B.	Que. <sup>1</sup>	Ont.
	No.	No.	No.	No.	No.	No.
Kindergarten.....	12,231	16	17,836	164	118,690	161,709
Grade 1.....	15,083	3,041	18,340	16,174	128,375	172,938
Grade 2.....	14,935	2,813	18,507	16,239	124,293	166,488
Grade 3.....	15,098	2,601	18,481	16,351	132,054	163,699
Grade 4.....	14,952	2,642	18,187	15,748	138,137	160,407
Grade 5.....	14,755	2,594	17,847	16,289	139,537	158,180
Grade 6.....	14,127	2,538	17,506	16,344	140,124	155,366
Grade 7.....	14,670	2,653	19,055	16,531	138,620	152,209
Grade 8.....	13,011	2,643	17,777	15,223	135,213	144,008
Grade 9.....	12,011	2,434	16,070	13,788	135,451	147,376
Grade 10.....	9,911	1,948	13,607	12,274	123,303	132,737
Grade 11.....	8,762	1,675	11,717	10,007	102,050	113,605
Grade 12.....	60	1,461	8,112	8,336	51,500	98,161
Grade 13.....	...	...	...	73	...	48,219
Elementary ungraded <sup>2</sup> .....	809	454	1,727	985	16,055	28,333
Secondary ungraded <sup>3</sup> .....	235	175	993	255	24,000	32,973
<b>Totals.....</b>	<b>160,650</b>	<b>29,688</b>	<b>215,762</b>	<b>174,781</b>	<b>1,647,402</b>	<b>2,036,408</b>

Grade	Man.	Sask.	Alta.	B.C.	Y.T. and N.W.T.	D.N.D. Schools Overseas	Canada
	No.	No.	No.	No.	No.	No.	No.
Kindergarten.....	16,253	4,788	931	22,655	825	973	357,071
Grade 1.....	22,925	24,386	40,561	47,904	1,867	985	492,579
Grade 2.....	21,888	22,408	38,716	46,275	1,444	969	474,975
Grade 3.....	21,796	22,350	38,267	46,323	1,395	836	479,251
Grade 4.....	21,269	21,994	37,823	46,458	1,240	725	479,582
Grade 5.....	21,074	21,740	37,332	45,708	1,166	688	476,910
Grade 6.....	20,004	20,986	36,103	44,256	928	632	468,914
Grade 7.....	20,378	21,549	35,398	42,810	861	529	465,263
Grade 8.....	19,101	20,666	33,964	42,129	787	491	445,013
Grade 9.....	19,399	20,827	33,051	40,866	587	377	442,237
Grade 10.....	18,263	19,414	31,150	37,400	492	267	400,766
Grade 11.....	16,215	16,160	26,958	33,720	339	205	341,413
Grade 12.....	14,047	15,012	27,949	29,552	260	132	254,582
Grade 13.....	...	...	...	901	...	94	49,287
Elementary ungraded <sup>2</sup> .....	4,165	1,966	2,324	6,801	21	13	63,653
Secondary ungraded <sup>3</sup> .....	2,903	953	2,087	5,242	70	—	69,886
<b>Totals.....</b>	<b>259,680</b>	<b>255,199</b>	<b>422,614</b>	<b>539,000</b>	<b>12,282</b>	<b>7,916</b>	<b>5,761,382</b>

<sup>1</sup> Estimate for publicly controlled and private schools only.

<sup>2</sup> Mainly children with learning difficulties receiving instruction in special classes.

<sup>3</sup> Mainly special vocational and occupational courses.

Approximately 2 p.c. of all elementary-secondary school students were enrolled in private schools in 1970-71 compared with 4 p.c. in 1960-61. In almost every province, these schools are being integrated into the public school system, possibly because of the improving quality of public education throughout the country, rising costs associated with private education and increasing democratization of education. Ontario is the major exception; in that province the number of students in private schools increased gradually over the decade from 26,175 to 44,116.

## 4.—Private School Enrolment, by Province, School Years 1960-61 to 1970-71

Year	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Total
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
1960-61.....	218 <sup>1</sup>	692	6,243	2,369	91,239	26,175	10,379	4,734	6,121	19,733	167,903
1961-62.....	570 <sup>1</sup>	639	6,470	2,574	96,478	27,826	11,150	4,823	6,374	22,731	179,635
1962-63.....	859 <sup>1</sup>	857	6,122	2,491	97,079	32,453	11,375	4,813	6,486	23,395	185,935
1963-64.....	602 <sup>1</sup>	502	6,212	1,993	101,443	41,721	11,175	4,665	6,436	23,242	197,991
1964-65.....	573 <sup>1</sup>	497	6,201	1,791	99,600 <sup>2</sup>	44,470	11,335	4,316	6,292	25,469	200,544
1965-66.....	1,024 <sup>1</sup>	511	5,362	1,654	104,138 <sup>2</sup>	45,554	10,576	2,439	6,570	25,853	203,681
1966-67.....	1,175 <sup>1</sup>	345	4,508	1,389	92,332 <sup>2</sup>	46,072	10,244	2,227	5,324	24,762	188,378
1967-68.....	230	140	3,255	468	68,909 <sup>2</sup>	42,986	9,708	1,987	5,614	24,160	157,457
1968-69.....	364	136	2,748	381	61,263 <sup>2</sup>	41,604	8,958	1,917	5,231	23,172	145,774
1969-70.....	553	70	2,125	353	51,700 <sup>2</sup>	43,007	8,178	1,854	5,342	22,359	135,541
1970-71.....	722	29	1,649	463	46,400 <sup>2</sup>	44,116	8,284	1,552	5,688	21,319	130,222

<sup>1</sup> Includes enrolment in Labrador City Collegiate.

<sup>2</sup> Revised data from Quebec Department of Education.

<sup>3</sup> Estimate.

Table 5 gives figures of enrolment in vocational and technical courses in publicly controlled vocational high schools, apprenticeship courses, trade schools and vocational centres, training in business and industry, nursing assistant schools, diploma schools of nursing, and community colleges and related institutions, together with enrolment in privately operated trade and business school courses. More detail on enrolment in nurses' (R.N.) diploma programs is given on p. 382.

Comparison of figures for 1968-69 and 1969-70 for both publicly controlled and privately operated schools offering vocational and technical courses shows that there has been a definite growth in enrolments. In particular, the increases have been substantial in publicly controlled vocational high schools, in apprenticeship courses, in trade schools and vocational centres and in community colleges, as well as in privately operated trade and business school courses. An increase has also been apparent in the business and industry category in the provinces for which data are available. On the other hand, enrolments in nursing assistant schools and diploma schools of nursing have not increased significantly.

## 5.—Full-Time Enrolment in Vocational and Technical Courses, by Province, School Years 1968-69 and 1969-70

Course	School Year Ended—	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.
		No.	No.	No.	No.	No.	No.
<b>Publicly Controlled—</b>							
Vocational high schools.....	1969 ..	921	2,150 <sup>1</sup>	10,553	..	231,763	..
	1970 238 <sup>1</sup>	863	2,541 <sup>1</sup>	10,613	..	..	..
Apprenticeship courses.....	1969 978	87	2,231	225	..	10,122	..
	1970 878	130	2,333	27 <sup>2</sup>	..	11,826	..
Trade schools and vocational centres....	1969 5,521	1,494	10,142	8,078	..	71,784	..
	1970 6,654	2,552	11,921	5,226	..	80,442	..
Training in business and industry.....	1969 ..	..	354	..	..	14,849	..
	1970 770	328	1,071	1,632	..	25,688	..
Nursing assistant schools.....	1969 460	31	265	152	717	2,250	..
	1970 248	26	285	212	630	2,442	..
Diploma schools of nursing <sup>3</sup> .....	1969 649	186	953	978	6,728	9,460	..
	1970 687	177	1,007	972	7,085	9,969	..
Community colleges and related institutions <sup>3</sup> .....	1969 713	—	913	467	14,010	27,004	..
	1970 756	96	794	525	20,919	32,723	..
<b>Privately Operated—</b>							
Trade school courses.....	1969 4	—	298 <sup>5</sup>	291	..	3,182	..
	1970 4	—	1,173 <sup>5</sup>	89	..	4,553	..
Business school courses.....	1969 4	4	582 <sup>5</sup>	571	..	2,615	..
	1970 4	4	733 <sup>5</sup>	545	..	5,259	..

For footnotes, see end of table, p. 402.



**5.—Full-Time Enrolment in Vocational and Technical Courses, by Province,  
School Years 1968-69 and 1969-70—concluded**

Course	School Year Ended—	Man.	Sask.	Alta.	B.C.	Y.T. and N.W.T.	Canada
		No.	No.	No.	No.	No.	No.
<b>Publicly Controlled—</b>							
Vocational high schools.....	1969	7,935	4,735	19,648	22,763	554	..
	1970	8,599	5,010	23,173	23,506	597	..
Apprenticeship courses.....	1969	1,222	2,121	7,946	3,432	38	28,402 <sup>a</sup>
	1970	1,340	1,862	8,516	3,583 <sup>7</sup>	—	30,495 <sup>a</sup>
Trade schools and vocational centres....	1969	7,846	5,494	6,400	17,196	435	134,390 <sup>a</sup>
	1970	6,100	5,711	7,339	16,809	427	143,181 <sup>a</sup>
Training in business and industry.....	1969	..	1,826	4,478	1,291	59	..
	1970	4,103	1,982	6,448	1,577	61	..
Nursing assistant schools.....	1969	283	198	605	450	—	5,411
	1970	330	207	571	527	—	5,478
Diploma schools of nursing <sup>3</sup> .....	1969	1,246	1,164	2,114	1,622	—	25,100
	1970	1,338	825	2,208	1,642	—	25,910
Community colleges and related institu- tions <sup>4</sup> .....	1969	1,224	1,145	6,420	3,265	—	55,161
	1970	1,540	1,488	6,727	3,549	—	69,117
<b>Privately Operated—</b>							
Trade school courses.....	1969	414	361	851	1,457	—	6,854 <sup>a</sup>
	1970	498	430	1,040	3,302	—	11,085 <sup>a</sup>
Business school courses.....	1969	1,209	1,096	726	911	—	7,710 <sup>a</sup>
	1970	1,704	1,252	986	2,021	—	12,500 <sup>a</sup>

<sup>1</sup> Enrolment in commercial courses taught in public secondary schools. <sup>2</sup> Most apprenticeship training is conducted on a part-time basis; enrolment in such courses was 2,378. <sup>3</sup> As some community colleges and other related institutions include nurses' (R.N.) diploma programs, a number of students have been reported in both the diploma schools of nursing and community colleges and related institutions categories. <sup>4</sup> Enrolment included with Nova Scotia. <sup>5</sup> Includes enrolment in one school in Newfoundland. <sup>6</sup> Includes enrolment in one school in Newfoundland and one in Prince Edward Island. <sup>7</sup> An additional 2,160 students attended classes on a part-time basis. <sup>8</sup> Exclusive of Quebec.

### Post-secondary Non-university Enrolment

During the 1960s, there was a rapid upsurge in enrolment in community colleges and related institutions. In vocational programs alone, full-time enrolment increased from 11,000 in 1960-61 to over 69,000 in 1969-70. (In addition, there are large numbers of part-time students in these colleges taking courses during the day or in the evening.) As already stated, demand increased during the period for technical and para-professional personnel in the labour force, institutions were built in proximity to communities where this demand occurred, finances became available to students and courses became much more diversified, all of which affected this increasing trend in enrolment. Table 6, presenting full-time enrolment in both vocational and academic programs in post-secondary courses in community colleges, shows that there is a great disparity among the provinces between enrolment in vocational programs and in university transfer studies. In 1969-70, community colleges in the Atlantic Provinces, Ontario and Manitoba offered only vocational and technical programs, although the Nova Scotia Agricultural College now provides university transfer studies. In the same year, the numbers of students in the university transfer programs in Quebec and British Columbia were greater than in vocational programs; the Quebec situation may be explained by the fact that the CEGEPs were set up at a tertiary level but as a prerequisite for university entrance and that several classical colleges in existence for some time have since their inception offered only academic programs.

In Canada as a whole, females made up 31.7 p.c. of the enrolments in vocational programs and 38.4 p.c. of enrolments in university transfer programs in 1969-70. In

comparison with the national average, Quebec females comprised upwards of 40 p.c. of the total number in vocational studies but in Ontario and Manitoba they comprised only about 25 p.c. Table 7 shows that more than 30 p.c. of the total female enrolment in post-secondary courses in community colleges was in fields traditionally reserved for females: 20.8 p.c. in medical, dental and nursing courses, 14.4 p.c. in business and commerce (secretarial science, etc.), 14.0 p.c. in applied arts, and 5.7 p.c. in social welfare and recreation. Few women were enrolled in such courses as aeronautical, architectural, automotive and diesel, civil, electrical and electronics, marine, mechanical, natural resources and other technologies. In contrast, upwards of 30 p.c. of the male enrolments were in the traditionally female categories.

**6.—Full-Time Enrolment in Post-Secondary Courses in Community Colleges and Related Institutions,<sup>1</sup> by Program, Sex and Province, School Year 1969-70**

Province	Schools	Enrolment in Vocational Programs			Schools	Enrolment in University Transfer Programs		
		Male	Female	Total		Male	Female	Total
	No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland.....	2	621	135	756	—	—	—	—
Prince Edward Island.....	1	64	32	96	—	—	—	—
Nova Scotia.....	5	579	215	794	—	—	—	—
New Brunswick.....	2	494	31	525	—	—	—	—
Quebec <sup>2</sup> .....	34	12,247	8,672	20,919	49	19,249	12,110	31,359
Ontario.....	33	24,193	8,530	32,723	—	—	—	—
Manitoba.....	3	1,156	384	1,540	—	—	—	—
Saskatchewan <sup>3</sup> .....	2	748	740	1,488	1	37	13	50
Alberta <sup>4</sup> .....	11	4,662	2,065	6,727	7	1,126	712	1,838
British Columbia <sup>5</sup> .....	8	2,468	1,081	3,549	8	2,308	1,347	3,655
<b>Canada.....</b>	<b>101<sup>6</sup></b>	<b>47,232</b>	<b>21,885</b>	<b>69,117</b>	<b>65<sup>6</sup></b>	<b>22,720</b>	<b>14,182</b>	<b>36,902</b>

<sup>1</sup> Related institutions include a number of private colleges, the Nova Scotia Agricultural College, the Ontario College of Art, and Lakehead University. <sup>2</sup> Four institutions in Quebec offer vocational programs only; 19 offer university transfer programs only. <sup>3</sup> Two institutions in Saskatchewan provide vocational programs only.

<sup>4</sup> Six colleges offer vocational programs only, and two institutions provide university transfer programs only. <sup>5</sup> The one institute of technology provides vocational courses only, and one junior college offers university transfer studies only.

<sup>6</sup> 42 community colleges offer both vocational and university transfer programs.

**7.—Full-Time Enrolment in Post-Secondary Courses in Community Colleges and Related Institutions, by Field of Specialization and Sex, School Year 1969-70**

Field of Specialization	Male	Female	Total	Field of Specialization	Male	Female	Total
	No.	No.	No.		No.	No.	No.
Applied arts.....	4,743	5,058	9,801	Technologies—concluded			
Business and commercial.....	14,530	5,187	19,717	Electrical and electronics...	1,393	7	1,400
University transfer programs.....	22,720	14,182	36,902	Food.....	227	355	582
Technologies—				Marine.....	261	2	263
Aeronautical.....	619	9	628	Mechanical.....	3,575	27	3,602
Architectural.....	867	17	884	Medical, dental and nursing.....	1,127	7,497	8,624
Automotive and diesel.....	465	—	465	Miscellaneous.....	3,213	588	3,801
Chemical.....	1,885	671	2,556	Natural resources.....	3,082	307	3,389
Civil.....	3,342	63	3,405	Social welfare and recreation.....	1,487	2,039	3,526
Electrical.....	1,142	1	1,143				
Electronic.....	5,274	57	5,331	<b>Totals.....</b>	<b>69,952</b>	<b>36,067</b>	<b>106,019</b>

Table 8 shows that there has been no significant change recently in the number of full-time students enrolled in the nurses' (R.N.) diploma course. The proportion of males to total enrolment remains very low; Quebec with 2.7 p.c. and Manitoba with 2.0 p.c. had the highest proportions in 1969-70. It should be noted again that in certain provinces some students take their nurses' diploma training in community colleges and related institutions

which results in their being reported twice—in the community college category and in the diploma schools of nursing category. The duplication in 1969-70 totalled 4,886 enrolments, distributed by province as follows: Quebec 3,440, Ontario 620, Saskatchewan 441, Alberta 197, and British Columbia 188.

**8.—Full-Time Enrolment in Diploma Schools of Nursing, by Year of Course, by Sex and by Province, School Year 1969-70**

Province	Schools	Full-Time Enrolment in—						Total Enrolment	
		1st Year		2nd Year		3rd Year			
		Total	Male	Total	Male	Total	Male	Total	Male
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland.....	4	282	8	222	1	183	2	687	11
Prince Edward Island.....	4	61	—	62	—	54	—	177	—
Nova Scotia.....	12	425	1	227	1	355	2	1,007	4
New Brunswick.....	11	378	6	333	1	261	1	972	8
Quebec.....	67	2,841	82	2,086	50	2,158	59	7,085	191
Ontario.....	72	4,251	51	3,276	31	2,442	15	9,969	97
Manitoba.....	6	489	6	431	14	418	7	1,338	27
Saskatchewan.....	5	432	4	368	2	25	—	825	6
Alberta.....	16	849	3	679	6	670	2	2,208 <sup>1</sup>	11
British Columbia.....	7	635	9	532	4	475	—	1,642	13
<b>Canada.....</b>	<b>204</b>	<b>10,643</b>	<b>170</b>	<b>8,216</b>	<b>110</b>	<b>7,041</b>	<b>88</b>	<b>25,910<sup>2</sup></b>	<b>368</b>

<sup>1</sup> A small proportion of the students in each year are in a four-year psychiatric nursing program; this total includes 10 in their fourth year. <sup>2</sup> See footnote 1.

**University Enrolment and Graduate Degrees Conferred**

During the 1965-66 to 1970-71 period, full-time university enrolment in Canada increased by approximately 111,000 students, or 54 p.c. The increase in 1970-71 over the preceding year was 5.7 p.c., to which all provinces contributed except Quebec, Manitoba and Saskatchewan. The decline in Quebec may be partly explained by the revised system that has been instituted in that province in which the 12th and 13th years for French-language students and the 12th year for some English-language students are now given in CEGEPs.

**9.—Full-Time Enrolment in Universities and Colleges, by Province, Regular Winter Sessions, 1965-66 to 1970-71**

Province	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71
	No.	No.	No.	No.	No.	No.
Newfoundland.....	3,168	3,893	4,473	4,782	5,157	6,378
Prince Edward Island.....	924	1,139	1,369	1,555	1,566	1,755
Nova Scotia.....	9,457	9,806	10,501	11,905	14,311	15,820
New Brunswick.....	6,371	6,862	7,927	8,961	9,608	10,580
Quebec.....	67,316	75,070	82,610	64,401	66,830	62,113
Ontario.....	58,983	68,589	79,089	92,589	108,825	121,115
Manitoba.....	11,069	12,389	13,426	15,099	16,597	16,941
Saskatchewan.....	10,707	11,577	12,697	13,884	14,973	14,860
Alberta.....	14,749	16,983	19,688	24,922	28,551	31,043
British Columbia.....	23,144	26,364	29,427	31,995	33,471	36,348
<b>Canada.....</b>	<b>205,888</b>	<b>232,672</b>	<b>261,207</b>	<b>270,093</b>	<b>299,889</b>	<b>316,953</b>



It should be noted that, in addition to the full-time university-grade enrolment, the number of students enrolled in pre-matriculation or university-grade courses on a part-time basis, either in the evenings, during summer session or by correspondence, was equal to over one third of the full-time enrolment in the regular winter session in 1969-70 (see also p. 408).

The marked increase in university enrolment from 1960-61 to 1969-70 resulted in a similar upsurge in degrees granted. The number of bachelor and first professional degrees conferred in that period increased 206.8 p.c., the number of masters' degrees 282.5 p.c., and earned doctorates 349.3 p.c. Because, during the same period, the proportion of women to total enrolment rose substantially, the proportion of women receiving bachelor and first professional degrees increased from 25.8 p.c. to 38.3 p.c. In the earlier year, the proportions of women receiving these degrees were approximately the same in all provinces except Quebec, where it was lower; in 1969-70, the proportions were very similar for all provinces.

**10.—Degrees Granted by Canadian Universities and Colleges,  
by Type and by Sex, School Years, 1960-61 to 1969-70**

Year	Bachelor and First Professional Degrees			Masters			Earned Doctorates		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
	No.	No.	No.	No.	No.	No.	No.	No.	No.
1960-61.....	14,620	5,084	19,704	1,869	343	2,212	279	27	306
1961-62.....	16,551	6,237	22,788	2,019	414	2,433	295	26	321
1962-63.....	17,941	6,969	24,910	2,258	498	2,756	387	34	421
1963-64.....	20,451	8,151	28,602	2,577	563	3,140	443	38	481
1964-65.....	22,918	10,208	33,126	2,930	691	3,621	518	54	572
1965-66.....	25,421	12,273	37,694	3,674	812	4,486	620	76	696
1966-67.....	28,178	14,538	42,716	4,202	1,054	5,256	717	63	780
1967-68.....	31,849	17,207	49,056	4,594	1,148	5,742	908	98	1,006
1968-69.....	34,305	20,013	54,318	5,515	1,568	7,083	1,021	87	1,108
1969-70.....	37,273	23,180	60,453	6,640	1,821	8,461	1,247	128	1,375

In 1970-71, as in the past, a large percentage of women graduated in traditionally female-oriented courses. More than 80 p.c. of the graduate degrees, diplomas and certificates conferred on women were in education, the humanities and related subjects and the social sciences and related subjects. The proportion of males receiving graduate degrees in these fields was significantly lower at 59 p.c. The percentage of women to total first and professional degrees granted in law, pharmacy and architecture has shown some increase recently but the proportion of women receiving these degrees to total first and professional degrees conferred on women has not.

Enrolment in Canadian universities and colleges of students from outside Canada has risen considerably during the past decade and a growing proportion of these students are from countries other than the United States and Britain. In the 1969-70 academic year, of the 17,423 students from all countries, 8,320 were from Commonwealth countries; in 1961-62, students from outside Canada numbered 7,251, of whom 3,294 were from the Commonwealth. Historically, most of the foreign students in graduate schools in Canada have been males; consequently, the number of such students should be considered, for example, when calculating the proportion of female enrolment and graduate degrees conferred on women to total enrolment and degrees granted.

### 11.—Bachelor and First Professional Degrees Awarded by Canadian Universities and Colleges, by Faculty or Field of Study and by Sex, 1969-70

Faculty or Field of Study	Male	Female	Total
	No.	No.	No.
Agriculture.....	497	34	531
Architecture.....	326	26	352
Arts.....	14,658	11,778	26,436
Commerce and business administration .....	2,721	189	2,910
Secretarial studies.....	—	39	39
Dentistry—			
D.D.S., D.M.D.....	319	17	336
B.Sc. Dentistry.....	5	—	5
Education.....	5,745	6,336	12,081
Engineering and applied arts.....	3,512	38	3,550
Environmental studies.....	80	7	87
Fine and applied arts.....	65	95	160
Interior design.....	9	26	35
Music.....	115	219	334
Forestry.....	181	4	185
Household science.....	—	568	568
Dietetics and nutrition.....	3	46	49
Journalism.....	16	21	37
Landscape architecture.....	14	2	16
Law.....	1,396	106	1,502
Library science.....	81	314	395
Medicine—			
B.Sc. Medicine.....	29	3	32
M.D.....	962	111	1,073
Nursing.....	33	1,212	1,245
Rehabilitation medicine.....	3	133	136
Occupational therapy.....	1	25	26
Physiotherapy.....	5	61	66
Optometry.....	52	5	57
Pharmacy.....	227	177	404
Religious studies and theology.....	728	141	869
Science.....	5,316	1,383	6,699
Social work.....	38	30	68
Veterinary medicine.....	110	7	117
Others.....	26	27	53
<b>Totals.....</b>	<b>37,273</b>	<b>23,180</b>	<b>60,453</b>

### 12.—Graduate Level Degrees, Diplomas and Certificates Awarded by Canadian Universities, by Field of Study and by Sex, 1969-70

Field of Study	Diplomas			Masters			Doctorates			Totals		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
Education.....	305	208	513	952	293	1,245	62	16	78	1,319	517	1,836
Fine and applied arts....	1	5	6	26	43	69	2	1	3	29	49	78
Humanities and related sciences and related.....	—	—	—	1,087	602	1,689	112	42	154	1,199	644	1,843
Agriculture and biological sciences.....	219	24	243	2,202	604	2,806	142	24	166	2,563	652	3,215
Engineering and applied sciences.....	6	3	9	395	96	491	214	21	235	615	120	735
Health professions and occupations.....	37	1	38	968	18	986	188	—	188	1,193	19	1,212
Mathematics and the physical sciences.....	150	46	196	192	98	290	87	8	95	429	152	581
	2	—	2	818	67	885	440	16	456	1,260	83	1,343
<b>Totals.....</b>	<b>720</b>	<b>287</b>	<b>1,007</b>	<b>6,640</b>	<b>1,821</b>	<b>8,461</b>	<b>1,247</b>	<b>128</b>	<b>1,375</b>	<b>8,607</b>	<b>2,236</b>	<b>10,843</b>

### Registrations in Adult Continuing Education Programs

Course registrations in school board adult education programs in 1969-70 was quite substantial, as shown in Table 13. About 46 p.c. of the total were in credit courses and 54 p.c. in non-credit general-interest courses. Since many individuals taking these courses were enrolled in more than one subject, it is estimated that the 354,512 registrations in credit courses represented 175,483 students and that the 420,386 registrations in non-credit courses represented 274,352 students.

Table 14 shows that part-time university and college enrolment in the regular 1969-70 winter session was also quite high and that 68.5 p.c. of the students were enrolled in undergraduate programs, 11.0 p.c. in graduate programs, and 20.5 p.c. in courses not leading toward university-awarded degrees, diplomas or certificates. The number of part-time students in universities who were enrolled in diploma or certificate courses at the non-university level was very small. Women comprised 46 p.c. of the part-time students in undergraduate programs, 24 p.c. of the part-time students in graduate programs and 33 p.c. of those not preparing for university-awarded degrees, diplomas or certificates.

**13.—Course Registrations in School Board Adult Education Programs, by Province, Regular Winter Session 1969-70**

Course	Nfld.	P.E.I. <sup>1</sup>	N.S.	N.B.	Que.	Ont.
	No.	No.	No.	No.	No.	No.
<b>Credit Courses</b> .....	<b>7,380</b>	<b>9,248</b>	<b>10,891</b>	<b>8,145</b>	<b>193,920</b>	<b>65,166</b>
Basic education and academic.....	7,380	8,656	7,819	4,902	159,073	43,054
Vocational-Secondary Level—						
Business and commercial.....	—	186	2,262	—	19,024	11,610
Trades and technical.....	—	406	810	3,243	15,823	10,502
<b>Non-credit (general interest) Courses</b> .....	<b>2,042</b>	<b>3,824</b>	<b>12,297</b>	<b>8,185</b>	<b>96,973</b>	<b>123,733</b>
Business or trade-related.....	64	1,072	2,259	2,337	4,055	28,818
Arts, crafts and hobbies.....	1,786	2,012	7,153	3,988	61,600	46,898
Cultural.....	43	271	879	1,307	750	14,952
Social education.....	115	231	743	373	28,365	20,125
Recreational.....	—	—	298	—	—	5,145
Other.....	34	238	967	180	2,203	8,795
<b>Total Registrations</b> .....	<b>9,422</b>	<b>13,072</b>	<b>23,188</b>	<b>16,330</b>	<b>290,893</b>	<b>188,899</b>

	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Canada
	No.	No.	No.	No.	No.	No.	No.
<b>Credit Courses</b> .....	<b>4,693</b>	<b>5,306</b>	<b>7,837</b>	<b>41,745</b>	—	<b>181</b>	<b>354 512<sup>2</sup></b>
Basic education and academic.....	3,938	4,751	6,834	22,655	—	170	269,232
Vocational-Secondary Level—							
Business and commercial.....	734	485	871	8,921	—	11	44,104
Trades and technical.....	21	70	132	10,169	—	—	41,176
<b>Non-credit (general interest) Courses</b> .....	<b>15,700</b>	<b>7,886</b>	<b>24,437</b>	<b>124,705</b>	<b>241</b>	<b>363</b>	<b>420,386<sup>3</sup></b>
Business or trade-related.....	2,046	3,360	1,834	16,970	24	133	63,032
Arts, crafts and hobbies.....	5,769	2,876	6,452	31,587	106	98	169,325
Cultural.....	1,050	400	1,611	10,666	45	18	31,982
Social education.....	1,926	773	6,634	25,116	—	44	84,445
Recreational.....	1,079	239	7,359	19,119	66	10	33,313
Other.....	3,830	238	547	21,257	—	—	38,289
<b>Total Registrations</b> .....	<b>20,393</b>	<b>13,192</b>	<b>32,274</b>	<b>166,450</b>	<b>241</b>	<b>544</b>	<b>774,898<sup>4</sup></b>

<sup>1</sup> 2,894 registrations in community school courses, apart from adult education classes held in secondary schools, are distributed under general-interest courses.

<sup>2</sup> Represents an estimated 175,483 students.

<sup>3</sup> Represents an estimated 274,352 students.

<sup>4</sup> Represents an estimated 449,835 students.



### 14.—Part-Time University and College Enrolment, by Faculty or Field of Study and by Sex, Regular Winter Session 1969-70

Faculty	Students Enrolled for University-Level Degrees, Diplomas or Certificates				Students not Preparing for University Awarded Degrees		Part-Time Students	
	Undergraduates		Graduates					
	Total	Female	Total	Female	Total	Female	Total	Female
	No.	No.	No.	No.	No.	No.	No.	No.
Arts and sciences.....	60,411	29,451	5,411	1,621	4,734	2,038	70,556	33,110
Agriculture.....	50	8	106	6	35	3	191	17
Architecture.....	44	2	32	4	9	4	85	10
Commerce and business administration.....	5,592	376	1,588	30	6,467	452	13,647	858
Dentistry.....	14	3	14	—	9	1	37	4
Education.....	14,750	7,387	3,530	997	1,090	545	19,370	8,929
Engineering and applied science.....	695	11	1,135	10	1,239	36	3,069	57
Fine and applied arts.....	415	278	14	7	57	40	486	325
Forestry.....	18	—	57	—	3	—	78	—
Household science.....	106	99	34	33	16	13	156	145
Journalism.....	24	10	—	—	—	—	24	10
Law.....	25	6	99	12	5	—	129	18
Library science.....	62	33	169	136	102	102	333	271
Medicine.....	7	2	149	38	5	2	161	42
Music.....	145	90	82	51	192	134	419	275
Nursing.....	902	888	11	10	21	20	934	918
Optometry.....	2	1	—	—	—	—	2	1
Pharmacy.....	36	9	14	8	36	14	86	31
Physical and health education.....	87	29	58	5	17	9	162	43
Physiotherapy and occupational therapy.....	26	25	—	—	13	6	39	31
Religious education and religious science.....	461	268	86	20	107	89	654	377
Social work.....	31	16	152	100	10	6	193	122
Theology.....	88	19	191	—	90	42	369	61
Veterinary science.....	—	—	19	3	1	—	20	3
Others.....	1,800	760	768	174	11,414	4,801	13,982	5,735
<b>All Faculties.....</b>	<b>85,791</b>	<b>39,771</b>	<b>13,719</b>	<b>3,265</b>	<b>25,672</b>	<b>8,357</b>	<b>125,182<sup>1</sup></b>	<b>51,393<sup>1</sup></b>

<sup>1</sup> Does not include 84 students (51 of whom are female) in universities enrolled for diplomas or certificates of non-university level.

### Subsection 2.—Teaching Staffs

#### Teaching Staffs in Elementary and Secondary Schools

During the 1950s and 1960s, the number of teachers in the publicly controlled schools in Canada increased from 85,152 to 249,078, or by 193 p.c. However, this steeply upward trend is not expected to continue during the next few years. At the elementary level the increase will be limited because of the predicted decline in school enrolment and, although secondary school student numbers are growing, the teaching staff at that level will not increase proportionately because of the current higher student-teacher ratio and the fact of greater teacher specialization.

It is interesting to note that greater numbers of men have entered the teaching profession during the past two decades; the number of men teachers in publicly controlled schools increased by 304 p.c. between 1949-50 and 1969-70, while the number of women teachers rose by 151 p.c. As shown in Table 15, men teachers at the secondary school level now significantly outnumber women teachers in eight provinces (data for Quebec and Ontario are not available) but the opposite is true for teachers at the elementary school level.

**15.—Summary Statistics of Teachers and Principals in Publicly Controlled  
Elementary and Secondary Schools, by Province, School Year 1969-70**

Province	Teachers and Principals		Median Salaries <sup>1</sup>		Median Experience		University Graduates	
	Male	Female	Male	Female	Male	Female	Male	Female
<b>TEACHING ELEMENTARY GRADES<sup>2</sup></b>								
	No.	No.	\$	\$	yrs.	yrs.	p.c.	p.c.
Newfoundland.....	1,213	3,466	5,561	4,358	4-9	5-1	29.2	11.0
Prince Edward Island.....	127	904	5,425	4,204	5-6	9-8	34.6	6.1
Nova Scotia.....	989	5,409	4,248	6,675	5-7	10-7	53.5	20.3
New Brunswick.....	830	4,342	6,316	4,844	4-6	8-7	47.7	13.2
Quebec.....	..	..	..	..	..	..	..	..
Ontario.....	..	..	..	..	..	..	..	..
Manitoba.....	1,683	5,558	7,291	5,915	7-5	5-9	36.7	12.5
Saskatchewan.....	1,701	5,653	7,556	6,336	6-8	7-7	40.2	8.9
Alberta.....	3,311	9,383	8,737	6,798	7-4	8-7	68.6	28.4
British Columbia.....	3,465	8,646	8,678	7,264	8-0	6-3	58.7	25.8
<b>TEACHING SECONDARY GRADES<sup>2</sup></b>								
Newfoundland.....	1,185	451	7,121	6,269	5-7	6-6	58.8	51.2
Prince Edward Island.....	263	192	6,850	5,795	5-1	8-0	70.3	42.2
Nova Scotia.....	1,710	1,335	7,497	6,839	5-8	8-3	75.0	58.4
New Brunswick.....	1,538	1,112	7,331	6,129	5-9	7-4	69.4	48.5
Quebec.....	..	..	..	..	..	..	..	..
Ontario.....	..	..	..	..	..	..	..	..
Manitoba.....	2,500	1,453	9,361	7,623	6-7	5-3	78.6	65.0
Saskatchewan.....	2,846	1,353	9,569	7,447	8-0	7-9	72.4	50.0
Alberta.....	4,528	2,599	9,531	7,961	6-9	6-7	83.3	67.9
British Columbia.....	5,909	2,795	9,840	8,550	8-6	7-2	81.7	74.7

<sup>1</sup> Salary data exclude Roman Catholic separate schools. <sup>2</sup> A teacher teaching both elementary and secondary grades is classified by level according to type of school. If he teaches in a junior high school or a junior-senior high school, or if he teaches in more than one school he is classified as a "secondary" teacher; otherwise, he is classified as an "elementary" teacher.

The median salary in 1969-70 for all teachers (excluding Quebec and Ontario) was \$7,124, an increase of 263 p.c. over the median salary in 1949-50 of \$1,965. The rate of increase from one year to the next during the two decades fluctuated considerably, ranging from 2.4 p.c. in 1962-63 to 9.7 p.c. in 1968-69.

It should be recognized that variations in median salaries do not necessarily indicate variations in the salary schedules on which teachers are being paid. Since salary scales are based on both years of education and years of teaching service, improvements in the teaching force based on either of these two factors could conceivably cause an increase in the median salary even though the salary scale remained constant. Thus, when the rise in the median is used for interprovincial or historical comparisons, the effects of other contributing factors should be taken into account.

The median salary of men teachers is higher than that of women teachers at both the elementary and secondary levels for eight provinces (excluding Quebec and Ontario). Although, proportionately, the women teachers have more years of experience, a greater proportion of the men teachers are university graduates. However, the proportion of teachers, both men and women, with university graduation has been rising steadily over the past few years and, as stated on p. 382, this trend is expected to continue.

### Teaching Staffs in Post-secondary Non-university Schools

The number of instructors in community colleges and related institutions in eight provinces (excluding Quebec and Prince Edward Island) was 3,965 in 1968-69 and the number in 1969-70 in nine provinces (excluding Quebec) was 4,434. These figures are not strictly comparable because of the exclusion of Prince Edward Island in 1968-69 but, as the number of instructors in that province is relatively small, it does not greatly affect the indicated growth in the total. The figure for each province (except Quebec) in 1969-70 is given in Table 2, pp. 398-399.

### Teaching Staffs in Post-secondary University Institutions

As shown in Table 16, the trend in the number of full-time university teachers in Canada during the period 1960-61 to 1970-71 has been steeply upward, rising from 9,200 to 24,612, or by 168 p.c.; the annual increase ranged from 6 p.c. to 15 p.c. It should be noted, however, that these figures are based on returns from institutions representing 50 to 90 p.c. of the enrolment, depending on the academic year, and are consequently estimates.

#### 16. Full-Time Teaching Complement in Universities and Colleges, Academic Years Ended 1961-70

NOTE.—Figures are estimates based on returns from institutions representing from 50 to 90 p.c. of the enrolment, depending on the academic year; they include research personnel, junior and sessional lecturers, and assistants.

Academic Year Ended—	Teachers	Academic Year Ended—	Teachers
	No.		No.
1961.....	9,200	1967.....	15,900
1962.....	9,755	1968.....	18,000
1963.....	10,540	1969.....	20,700
1964.....	11,670	1970.....	23,000
1965.....	12,940	1971.....	24,612
1966.....	14,300		

According to a sample of 19 Canadian universities (including, however, the largest in Canada), the median salary of university teachers in 1970-71 was \$14,887, an amount \$1,048 or 8.6 p.c. higher than in the previous year. By rank, the median salary for deans was \$25,575, up 0.5 p.c. from the previous year; for professors, \$22,136 or 8.7 p.c. higher; for associate professors, \$16,096 or 6.7 p.c. higher; for assistant professors, \$12,739 or 6.6 p.c. higher; and for instructors and lecturers, \$10,000 or 6.3 p.c. higher.

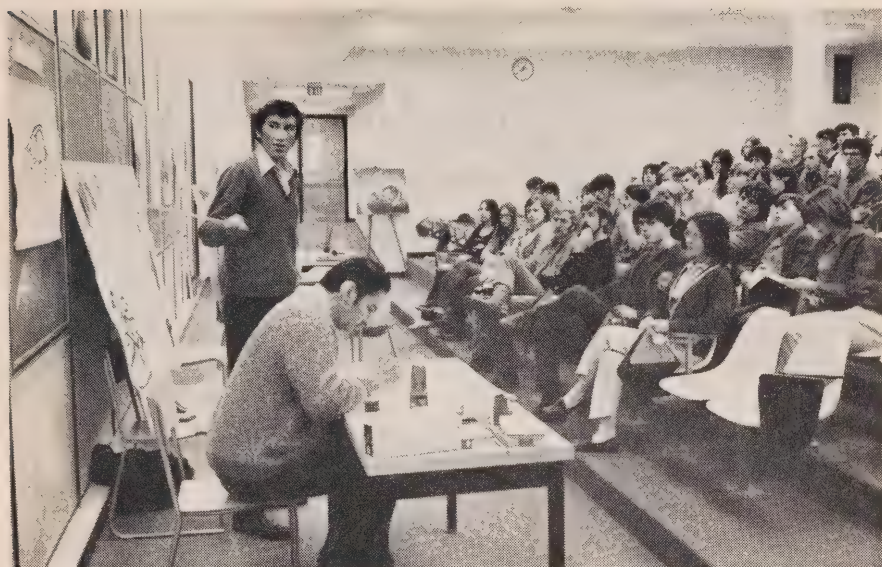
Regional disparities exist in median salaries of university teachers for both years. For 1969-70, the median salary of teachers was lowest in the Atlantic Provinces (\$2,111 below the total median salary), followed by the western provinces (\$297 below the total), and highest in the central provinces (\$694 above the total). For 1970-71, the gap in median salaries between the Atlantic Provinces and the other two regions closed slightly.

#### 17.—Median Salaries of Teachers at 19 Degree-Granting Universities, by Region and Rank, Academic Years 1969-70 and 1970-71

NOTE.—Universities include: West—Universities of Manitoba, Saskatchewan, Alberta, Calgary, and British Columbia; Central—Bishop's, McGill, Queen's, Toronto, Victoria, Trinity, McMaster, Western Ontario and Ontario Institute for Studies in Education; Atlantic—Acadia, Dalhousie, St. Francis Xavier, Mount Allison and New Brunswick.

Rank	Region				Staff Comple- ment
	Atlantic Provinces	Central Provinces	Western Provinces	Total	
	1969-70				
	\$	\$	\$	\$	No.
Deans.....	20,800	26,500	25,520	25,450	169
Professors.....	17,567	20,979	20,169	20,362	2,331
Associate Professors.....	13,860	15,336	15,094	15,089	3,187
Assistant Professors.....	11,037	12,083	11,863	11,950	3,933
Instructors and Lecturers.....	8,962	9,763	9,180	9,407	1,345
Totals, All Ranks.....	11,728	11,533	13,542	13,839	11,114
	1970-71				
	\$	\$	\$	\$	No.
Deans.....	24,550	28,850	28,000	25,575	184
Professors.....	19,600	22,760	22,083	22,136	2,611
Associate Professors.....	15,031	16,366	16,102	16,096	3,700
Assistant Professors.....	11,994	13,043	12,741	12,739	4,352
Instructors and Lecturers.....	9,591	10,445	9,405	10,000	1,368
Totals, All Ranks.....	13,111	15,514	14,684	14,887	12,506





Two well-known Indian artists, whose work reflects the legends of their people, tour Ontario schools and community art groups, introducing students to Ojibway art and culture.

### Subsection 3.—Expenditures on Education

Table 18 contains information on expenditures in Canada on the different levels of education and the sources of the funds so spent. Expenditures on elementary and secondary education by region and by type of school are given in Table 19.

**18.—Expenditures on Education, by Source of Funds and Level of Education,  
School Year 1968-69**

Level of Education	Local Govern- ments	Provincial Govern- ments	Federal Govern- ment	Fees	Other	Total
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Elementary and secondary.....	1,482,284	1,919,069	186,681	65,009	105,162	3,758,205
Post-secondary non-university.....	12,043	99,794	126,719	9,467	5,266	253,289
Registered nursing education.....	—	23,482	23,377	—	—	46,859
Vocational.....	—	90,678	218,462	8,663	4,465	322,268
Teacher training outside universities.	—	27,976	329	1,489	20	29,814
University.....	2,238	445,102	606,348	162,331	129,391	1,345,410
Other.....	—	—	27,188	—	—	27,188
<b>Totals.....</b>	<b>1,496,565</b>	<b>2,606,101</b>	<b>1,189,104<sup>1</sup></b>	<b>246,959</b>	<b>244,304</b>	<b>5,783,033</b>

<sup>1</sup> Includes transfers to the provinces under the Federal-Provincial Fiscal Arrangements Act of \$527,937,000.

**19. Expenditures on Elementary and Secondary Education, by Region and by Type of School, School Year 1968-69**

Type of School	Atlantic Provinces	Quebec	Ontario	Western Provinces	Yukon and Northwest Territories and Overseas	Total
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
School Board System <sup>1</sup> .....	258,228	950,805	1,372,730	913,644	7,150	3,502,557
Special education.....	5,521	24,705	23,237	11,301	350	65,114
Federal schools.....	4,737	9,899	17,324	43,971	26,028	101,959
Private schools.....	2,791	26,790	36,276	22,718	—	88,575
<b>Totals.....</b>	<b>271,277</b>	<b>1,012,199</b>	<b>1,449,567</b>	<b>991,634</b>	<b>33,528</b>	<b>3,758,205</b>

<sup>1</sup> Includes expenditures by provincial governments on central administration and contributions to teachers' pension funds.

## PART II.—CULTURAL ACTIVITIES RELATED TO EDUCATION

### Section 1.—The Arts and Education

There has been considerable expansion of education opportunities in the arts in Canada in the past few years. Courses of artistic content have increased to some extent in the universities but the main growth has taken place in the newly established community colleges of Ontario and collèges d'enseignement général et professionnel (CEGEPs) of Quebec. These colleges offer both the transfer diploma which allows the student to continue his studies at university, and the vocational diploma with which the student may seek employment in his area of specialty. There are also independent institutions, such as the Artists' Workshop in Toronto, the National Theatre School in Montreal and the Kootenay School of Art in Nelson, B.C., where instruction is given with or without diploma awards.

Table 1 shows the facilities available for the study of the arts in Canada in 1969-70 as reported by 39 universities, 67 colleges and 15 independent institutions.\*

\* More detail is available in Statistics Canada publication *Facilities for the Study of the Arts in Canada* (Catalogue No. 81-223).

#### 1.—Facilities for the Study of the Arts in Canada, Academic Year 1969-70

Course	University			Community College and CEGEP		Independent	
	Undergraduate	Masters'	Doctorate	Transfer Diploma	Vocational Diploma	Diploma	Non-diploma
	No.	No.	No.	No.	No.	No.	No.
Advertising and commercial art.....	—	—	—	—	7	—	1
Fine art.....	20	3	3	16	9	3	3
Crafts <sup>1</sup> .....	—	—	—	—	8	3	2
Creative writing.....	2	1	—	—	—	1	—
Dance.....	1	—	—	—	15	1	—
Design <sup>2</sup> .....	6	—	—	—	13	1	1
Graphic arts.....	—	—	—	—	4	—	3
Music.....	32	9	6	10	5	1	—
Photography and film.....	3	5	—	6	5	2	1
Theatre.....	14	—	1	2	5	—	—

<sup>1</sup> Includes pottery, ceramics, batik, jewellery and metal arts. design.

<sup>2</sup> Includes furniture, interior and fashion design.

### Fine Art Schools, Galleries and Organizations

Fine art (architecture, painting and drawing, commercial and decorative arts, graphics, ceramics and sculpture) appears as an elective subject of the faculty of arts in a number of universities, where it may be taken as one of five, six or more subjects for a year or two. Eight universities offer a Bachelor of Fine Arts degree:—

Mount Allison University, Sackville, N.B.  
 Sir George Williams University, Montreal, Que.  
 University of Windsor, Windsor, Ont.  
 University of Manitoba, Winnipeg, Man.  
 University of Alberta, Edmonton, Alta.  
 University of Calgary, Calgary, Alta.  
 University of British Columbia, Vancouver, B.C.  
 University of Victoria, Victoria, B.C.

Twelve universities offer a Bachelor of Arts degree with a major in fine art:—

Université de Moncton, Moncton, N.B.  
 McGill University, Montreal, Que.  
 Sir George Williams University, Montreal, Que.  
 University of Ottawa, Ottawa, Ont.  
 University of Toronto, Toronto, Ont.  
 York University, Toronto, Ont.  
 McMaster University, Hamilton, Ont.  
 University of Guelph, Guelph, Ont.  
 University of Western Ontario, London, Ont.  
 University of Windsor, Windsor, Ont.  
 University of Saskatchewan, Saskatoon and Regina, Sask.  
 University of British Columbia, Vancouver, B.C.

There are many schools of art with varying academic requirements for admission. These offer diploma or certificate courses and are concerned largely with the technical development of the artist. Among those widely known are:—

Nova Scotia College of Art, Halifax, N.S.  
 École des Beaux-Arts, Quebec, Que.  
 École des Beaux-Arts, Montreal, Que.  
 Institut des Arts Appliqués, Montreal, Que.  
 School of Art and Design, Montreal Museum of Fine Arts, Montreal, Que.  
 Humber College of Applied Arts and Technology, Toronto, Ont.  
 Ontario College of Art, Toronto, Ont.  
 Three Schools in Toronto, Ont.—  
     Artists' Workshop  
     Hockley Valley School  
     The New School of Art  
 Sheridan College of Applied Arts and Technology, Brampton, Ont.  
 Doon School of Fine Arts, Kitchener, Ont.  
 University of Manitoba School of Art, Winnipeg, Man.  
 School of Art, Regina Campus, University of Saskatchewan, Regina, Sask.  
 Alberta College of Art, Calgary, Alta.  
 Banff School of Fine Arts, Banff Alta.  
 Southern Alberta Institute of Technology, Calgary, Alta.  
 Kootenay School of Art, Nelson, B.C.  
 Capilano College, Vancouver, B.C.  
 Vancouver School of Art, Vancouver, B.C.  
 University of Victoria, Victoria, B.C.

Courses in these schools vary in length with the requirements of the individual student but may extend over as many as four years. In some of these schools fine crafts as well as



fine arts are taught. Summer schools of art are sponsored by some of the foregoing institutions, by universities and by various independent groups. One of the more important summer schools is the Bauff School of Fine Arts, affiliated with the University of Calgary.

Public art galleries in the principal cities perform valuable educational services among adults and children. Children's Saturday classes, conducted tours for school pupils and adults, radio talks, lectures and concerts are features of the programs of the various galleries. Many of these institutions supply their surrounding areas with travelling exhibitions and some range even farther afield. Several organizations such as the Maritime Art Association, the Atlantic Provinces Art Circuit, the Western Canada Art Circuit, the Art Institute of Ontario, the Art Gallery of Ontario and the new *Fédération des centres culturels du Québec* have been founded to carry out this sort of travelling program on a regional basis. On a smaller scale, art circuits are organized to serve certain areas such as those around St. John's, Nfld., Charlottetown, P.E.I., Trois-Rivières and Hull, Que., and Winnipeg, Man. The National Gallery of Canada conducts a nation-wide program of this nature and is one of the largest circulating agencies in North America (see p. 415). Several galleries maintain an art-rental service.

Among the principal public art galleries are:—

Fathers of Confederation Art Gallery and Museum, Charlottetown, P.E.I.  
 Beaverbrook Art Gallery, Fredericton, N.B.  
 The New Brunswick Museum, Saint John, N.B.  
 Musée du Québec, Quebec, Que.  
 Montreal Museum of Fine Arts, Montreal, Que.  
 Musée d'Art Contemporain, Montreal, Que.  
 National Gallery of Canada, Ottawa, Ont.  
 Art Gallery of Ontario, Toronto, Ont.  
 Art Gallery of Hamilton, Hamilton, Ont.  
 Kitchener-Waterloo Art Gallery, Kitchener, Ont.  
 Public Library and Art Museum, London, Ont.  
 Sarnia Public Library and Art Gallery, Sarnia, Ont.  
 Willistead Art Gallery, Windsor, Ont.  
 Winnipeg Art Gallery, Winnipeg, Man.  
 Mendel Art Gallery, Saskatoon, Sask.  
 Moose Jaw Art Gallery and Museum, Moose Jaw, Sask.  
 Edmonton Art Gallery, Edmonton, Alta.  
 Vancouver Art Gallery, Vancouver, B.C.  
 Art Gallery of Greater Victoria, Victoria, B.C.  
 Art Gallery of Victoria, Victoria, B.C.

Other important collections of art are housed in arts councils and university galleries. Among the university galleries are:—

St. John's Memorial University Art Gallery, St. John's, Nfld.  
 Anna Leonowens Gallery, Nova Scotia College of Art, Halifax, N.S.  
 Dalhousie University Art Gallery, Halifax, N.S.  
 Creative Art Centre of the University of New Brunswick, Fredericton, N.B.  
 Owens Museum of Fine Arts, Mount Allison University, Sackville, N.B.  
 Université de Moncton, Moncton, N.B.  
 Séminaire des Clercs de St-Viateur, Joliette, Que.  
 Université Laval, Quebec, Que.  
 Loyola of Montreal Museum, Montreal, Que.  
 McGill University, Montreal, Que.  
 Sir George Williams University Art Gallery, Montreal, Que.  
 Carleton University, Ottawa, Ont.  
 Agnes Etherington Art Centre, Queen's University, Kingston, Ont.  
 Hart House, and Sigmund Samuel Canadiana Gallery of the University of Toronto.  
 Toronto, Ont.

York University, Toronto, Ont.  
University of Waterloo Art Gallery, Waterloo, Ont.  
McIntosh Memorial Art Gallery, University of Western Ontario, London, Ont.  
University of Manitoba, Winnipeg, Man.  
Norman Mackenzie Art Gallery of the University of Saskatchewan, Regina, Sask.  
University of Saskatchewan, Saskatoon, Sask.  
University of Alberta, Edmonton, Alta.  
University of Calgary, Calgary, Alta.  
Fine Arts Gallery of the University of British Columbia, Vancouver, B.C.

Five of the more important galleries connected with arts councils are the St. Catharines and District Arts Council, St. Catharines, Ont., the Glenhyrst Arts Council, Brantford, Ont., the Department of Fine Arts, McMaster University, Hamilton, Ont., the Brandon Allied Arts Centre, Brandon, Man., and the Art Gallery of the Calgary Allied Arts Centre, Calgary, Alta.

Among the leading fine art organizations of national scope, exclusive of museums and art galleries, are:—

Association of Canadian Industrial Designers  
National Design Council  
Canadian Conference of the Arts  
Canadian Craftsmen's Association  
Canadian Society for Education through Art  
Canadian Group of Painters  
Canadian Guild of Potters  
Canadian Handicrafts Guild  
Canadian Museums Association  
Canadian Society of Graphic Art  
Canadian Society of Painter-Etchers and Engravers  
Canadian Society of Painters in Water Colour  
Canadian Society of Landscape Architects  
Federation of Canadian Woodcarvers  
Royal Canadian Academy of Arts  
Royal Architectural Institute of Canada  
Sculptors' Society of Canada  
Town Planning Institute of Canada  
Canadian Centre for Films on Art  
Community Planning Association of Canada.

**The National Gallery of Canada.**—The beginnings of the National Gallery of Canada are associated with the founding of the Royal Canadian Academy of Arts in 1880. The Marquess of Lorne, then Governor General, had recommended and assisted the founding of the Academy and among the tasks he assigned to that institution was the establishment of a National Gallery at the seat of government. Until 1907 the National Gallery was under the direct control of a Minister of the Crown but in that year, in response to public demand, an Advisory Arts Council consisting of three laymen was appointed by the Government to administer grants to the National Gallery. Three years later, the first professional curator was appointed.

In 1913, the National Gallery was incorporated by Act of Parliament and placed under the administration of a Board of Trustees appointed by the Governor General in Council; its function was to encourage public interest in the arts and to promote the interests of art throughout the country. Under this management, the Gallery increased its collections and developed into an art institution worthy of international recognition. Today, a Board of Trustees, reporting to the Secretary of State, administers all the National Museums of Canada, including the National Gallery (RSC 1970, c. N-12). In 1960, the Gallery entered a new era in its history when the entire national collection and

the staff and equipment necessary to its maintenance were transferred to new modern quarters—the Lorne Building in downtown Ottawa—which provides adequate well-lighted space for hanging the permanent collection and for displaying travelling exhibitions.

The Gallery's collections have been built up along international lines and give the people of Canada an indication of the origins from which their own tradition is developing. The collection of Canadian art, the most extensive and important in existence, is continually being augmented by the purchase of works from the Biennials of Canadian Art and other sources. The collections include many Old Masters, among which are twelve acquired from the famous Liechtenstein collection; extensive war collections; the Massey collection presented to the Gallery during 1946-50 by the Massey Foundation; a growing collection of contemporary art; prints and drawings; and diploma works of the Royal Canadian Academy. The prints and drawings collection consists of more than 5,000 items. The services of the Gallery include the operation of a reference library open to the public, which contains more than 30,000 volumes and periodicals on the history of art and other related subjects.

The National Conservation Research Laboratory, established in 1964, provides technical information on works of art from public and private collections across Canada and is responsible for the conservation of the national art collections. In addition, research is carried out on the effects of environment on works of art and on the durability of artists' materials.

An active program of exhibitions, lectures, films and guided tours is maintained for visitors to the Gallery in Ottawa. The interests of the country as a whole are served by circulating exhibitions, lecture tours, publications, reproductions and films prepared by the National Gallery staff. Promotion of and information on art films are handled by the Canadian Centre for Films on Art and their distribution by the Canadian Film Institute. The Gallery promotes interest in Canadian art abroad by participating in international exhibitions such as the Biennials of Venice and Paris, and by preparing major exhibitions of Canadian art for showing in other countries. At the same time, it brings important exhibitions from abroad for circulation in Canada.

**Performing Arts Schools.**—Degree courses in music, the most widespread of the performing arts (which also include opera, drama, ballet and dance) are offered at a number of Canadian universities, listed as follows:—

- St. Francis Xavier University, Antigonish, N.S.—B.A. major
- Dalhousie University, Halifax, N.S.—B. Mus. Ed.
- Mount Saint Vincent, Halifax, N.S.—B.A. (mus.)
- Acadia University, Wolfville, N.S.—B.A. major, L. Mus., and B. Mus.
- Mount Allison University, Sackville, N.B.—B.A. major, B. Mus., B.M. Ed.
- Université de Moncton, Moncton, N.B.—B.A. (mus.)
- Université Laval, Quebec, Que.—L. Mus., B. Mus., D. Mus.
- McGill University, Montreal, Que.—L. Mus., B. Mus., M.M.A. (musical arts)
- Université de Montréal, Montreal, Que.—L. Mus., B. Mus., and D. Mus.
- Carleton University, Ottawa, Ont.—B.A. (mus.)
- Queen's University, Kingston, Ont.—B. Mus., B.A. major
- University of Toronto, Toronto, Ont.—B. Mus., B.A. (mus.), Art. Dip. Mus., Lic. Dip. Mus., Mus. Bac. (performance), Mus. Bac. (history, literature, composition, education), Mus. M., M.A. (musicology), Mus. Doc., Ph.D. (musicology)
- McMaster University, Hamilton, Ont.—Mus. Bac.
- University of Western Ontario, London, Ont.—B.A. major, Mus. B., M.A. (musicology), and Mus. M.
- University of Windsor, Windsor, Ont.—B.A. (mus.) and B. Mus.
- University of Manitoba, Winnipeg, Man.—B.A. major, A.M.M., L.M.M. and B. Mus.
- Brandon University, Brandon, Man.—B. Mus. (education or performance)
- University of Saskatchewan, Regina, Sask.—A.M.U.S., L.M.U.S., B. Mus., B. Mus. Ed.
- University of Saskatchewan, Saskatoon, Sask.—B.A. major, B. Mus., B. Mus. Ed.
- University of Lethbridge, Lethbridge, Alta.—B.A. (mus.)



- University of Alberta, Edmonton, Alta.—B. Mus. and M. Mus.  
 University of Calgary, Calgary, Alta.—B. Mus.  
 University of British Columbia, Vancouver, B.C.—B.A. major, B. Mus. and M. Mus.  
 University of Victoria, Victoria, B.C.—B. Mus., M. Mus., Ph.D. (mus.).

Advanced instruction in music is also given at the Conservatoire de Musique et d'Art Dramatique in both Montreal and Quebec. Opera may be studied at the Royal Conservatory Opera School of the University of Toronto where advanced students work in close collaboration with the Canadian Opera Company and also at the Conservatoire de Musique et d'Art Dramatique and at the Banff School of Fine Arts (summer) at Banff, Alta., an affiliate of the University of Calgary.

Degree courses in drama are offered at the following universities:—

- Université de Moncton, Moncton, N.B.—B.A. (art dramatique)  
 Sir George Williams University, Montreal, Que.—B.F.A. (drama)  
 Queen's University, Kingston, Ont.—B.A. (drama)  
 University of Toronto, Toronto, Ont.—M.A. (drama)  
 University of Windsor, Windsor, Ont.—B.A. (drama), B.F.A. (dramatic art)  
 University of Saskatchewan, Regina, Sask.—B.F.A. (drama)  
 University of Saskatchewan, Saskatoon, Sask.—B.A. (drama), M.A. (drama)  
 University of Alberta, Edmonton, Alta.—B.A. (drama), M.A. (drama), B.F.A. (drama), M.F.A. (drama, design or directing)  
 University of Calgary, Calgary, Alta.—B.F.A. (drama)  
 University of British Columbia, Vancouver, B.C.—B.A. (theatre), M.A. (theatre)  
 University of Victoria, Victoria, B.C.—B.F.A. (theatre).

Advanced instruction in drama is also given during the summer at the Banff School of Fine Arts. The National Theatre School of Canada offers complete practical training for talented students. It is bilingual, courses being held at Montreal, Que., from October to June. Three years are required for the acting course and two for technical and production studies.

The National Ballet School at Toronto is the only residential ballet school in Canada. It offers academic studies together with practical instruction. Professional instruction is also offered by two other major Canadian ballet companies, Les Grands Ballets Canadiens, Montreal, and the Royal Winnipeg Ballet, Winnipeg, and advanced ballet training is given during the summer at the Banff School of Fine Arts.

## Museums

The museums of Canada, as elsewhere, range from small, locally gathered, historical artifacts and objects to large government-operated institutions which collect, classify and display such objects as may be necessary to study and disseminate knowledge of natural history, human history, science and technology, with special but not exclusive reference to Canada. Many of these larger museums, especially the National Museums of Canada and the Royal Ontario Museum, have a long, distinguished heritage in research and publication of scholarly works and serve an important role as educational and cultural centres. In this area they have an advantage over other agencies of education in that they are able to provide, for study and exhibition, actual, original objects as well as descriptions and pictures of such objects. They offer many educational services to the public through exhibits, guided tours, lectures and scientific and popular publications. The following museums have staff members who are specifically charged with organizing programs in education and providing extension services:—

- Nova Scotia Museum, Halifax, N.S.  
 McGill University Museums, Montreal, Que.  
 National Museums of Canada, Ottawa, Ont.  
 Royal Ontario Museum, Toronto, Ont.  
 Saskatchewan Museum of Natural History, Regina, Sask.

Other museums that conduct educational and extension programs using the regular curatorial and administrative staff are:—

The New Brunswick Museum, Saint John, N.B.

Museum of the Province of Quebec, Quebec, Que.

The Manitoba Museum, Winnipeg, Man.

Provincial Museum of Natural History and Anthropology, Victoria, B.C.

Direct work with schools may involve the holding of classes within the museum or visits of museum lecturers, with exhibits, to the schools. More informal are the guided tours for visiting school classes, the lending of specimens, slides, filmstrips or motion picture films to schools, and the training of student-teachers in the educational use of the museum. A number of museums have special programs for children not directly associated with school work including Saturday lectures and film showings, activity groups, nature clubs and field excursions. At the higher educational level, museum field parties provide research training to university students in many disciplines and museum staffs act as professional consultants, answer a host of enquiries on scientific and technical subjects, and serve as consultants or advisers to foreign scholars and institutions.

For adult laymen, museums offer lectures, film showings and guided tours, the latter usually available throughout the year. Staff members may be sent to give lectures to service clubs, church groups, parent-teacher associations and hobby clubs. The latter, such as naturalists' groups, mineral clubs and astronomy societies, may use the museum as their headquarters. Travelling exhibits are prepared for showing at local fairs, historical celebrations and conventions. At least seven Canadian museums have conducted regular radio or television programs and others have made occasional contributions. Some historical museums stage annual events during which the arts, crafts or industries represented by the exhibits are demonstrated to the public.

**The National Museums of Canada.**—The National Museums originated in the Geological Survey of Canada and their early history is inseparable from that institution. The first united Parliament of Upper and Lower Canada met in Montreal in 1841. In July of that year, the Natural History Society of Montreal and the Literary and Historical Society of Quebec petitioned the government to carry out a geological survey. As a result, a resolution was passed in the Estimates of Sept. 10 to defray the expenses of a geological survey of the Province of Canada.

William E. Logan was appointed the first director of the Geological Survey in 1842. He and his assistant, Alexander Murray, undertook their first field work in 1843, and their collections formed the humble beginnings of the National Museums. Logan was much more than a geologist and his interests extended to other branches of natural science. His diaries contain accurate drawings of named plants. He wrote in his annual report for the year 1852-53: "It may be a consideration whether a growing country like Canada could not afford to anticipate what future importance may require in the nature of a national museum and at some future time not far distant, erect an appropriate edifice especially planned for the purpose".

In the meantime, the officers of the Geological Survey continued to collect for the geological museum. In 1856 Elkanah Billings, a palaeontologist and the first of a number of specialists, was added to the staff. Legislation passed that same year to continue the work of the Geological Survey specified the establishment of a geological museum open to the public to exhibit specimens, books and instruments.

In 1874 the practice of recording the number of visitors to the museum was started; from May 1874 to April 1875 the number of visitors was 1,017 and by April 1896 it had reached 31,595 annually. In 1874 the distribution of specimens of minerals, rocks and other natural history objects to schools was started with a donation to the Board of School Teachers of Elora, Ont. The first organized museum lecture program was undertaken in 1912 with a series of lectures for young people after school. By 1915, Saturday morning lectures for children and evening lectures for adults—both features of the museum program

today—were in operation. Prior to 1880 the museum occupied several buildings in Montreal, but that year the Geological Survey moved to Ottawa and moved into the former Clarendon Hotel on Sussex Street. Construction of the Victoria Memorial Museum building was started in 1904 and six years later the Geological Survey moved in.

The scope of the museum was enlarged in the Act of Apr. 28, 1877 "to make better provision respecting the Geological and Natural History Survey of Canada and for maintenance of the museum in connection therewith". In that Act the survey was instructed "to study and report upon the flora and fauna of the Dominion" and "to continue to collect the necessary material for a Canadian museum of natural history, mineralogy and geology". As early as the Act of 1856 the Geological Survey of Canada had been authorized to "from time to time" distribute publications relative to the survey. From this authority developed the museum's series of scientific bulletins presenting the researches of its staff.

The Act of 1877 established the Geological Survey and the museum on a continuing basis and permitted the appointment of specialists in natural history. John Macoun was appointed to establish the division of biology in 1882. He was an eminent botanist who had accompanied the expedition of Sanford Fleming to explore Western Canada in 1871. Macoun's report of 1874 laid the groundwork for the establishment of western Canadian agriculture. He also published a catalogue of Canadian birds. In 1895 under the third director of the Geological Survey, George M. Dawson, the museum entered the field of Canadian anthropology.

In 1910 the museum began an expanded program of research and exhibition under the direction of R. W. Brock, then director of the Geological Survey of Canada. Unfortunately this program was curtailed during the first World War because the burning of the Parliament Buildings in 1916 forced Parliament to occupy the museum building until 1919. Later, expansion of the exhibition halls was handicapped by the museum sharing its building with the National Gallery of Canada and the Geological Survey of Canada. In 1927 the Governor General in Council gave authority "to designate the museum branch of the Department of Mines as the National Museum of Canada". In 1956 the museum was divided into two branches, the Museum of Natural History and the Museum of Human History. Ten years later, a third branch, the Museum of Science and Technology, was formed. On Apr. 1, 1968, the National Museums Act was proclaimed by Parliament which brought the three branches of the National Museum of Canada and the National Gallery of Canada under the National Museums Corporation.

The Act specified a 14-member board of trustees with over-all responsibility for policy and operations of the National Museums of Canada. The Board includes a chairman and a vice-chairman, each appointed for a five-year period. The other members are appointed for terms ranging from two to four years each. The new Act also created the position of secretary-general with responsibility for the financial and administrative arrangements of the museums. The names for the three museums were changed—the Natural History Branch became the National Museum of Natural Sciences; the Human History Branch, the National Museum of Man; and the Science and Technology Branch, the National Museum of Science and Technology. The name of the National Gallery of Canada remained unchanged.

The responsibilities of a great museum include collecting, preserving and storing objects related to the various disciplines within its area of activities. Of equal importance is the research carried out by specialists in these fields and the publication of their findings. Museums exhibit artifacts from their collections in attractively designed displays to illustrate the scientific origins of the various subjects. This, however, is only part of a museum's extensive education program, which extends to lectures, publications, enquiries, consultations, workshops, guided tours for children and adults alike, travelling exhibits, loans, library services and radio and television programs. The National Museums of Canada present all these facets for the enjoyment and education of the people of Canada.

Recent activities in the Museum of Natural Sciences, the Museum of Man and the Museum of Science and Technology are outlined in the following paragraphs; the activities



of the National Gallery are discussed on pp. 415-416. The staff common to the four institutions—concerned with exhibition and educational, technical, administrative and financial functions—totalled 391 during 1970-71, including seven executives and 88 scientific and professional, 121 administrative and administrative support, 88 general technical and 46 operational employees as well as 41 casuals. During the 1970-71 fiscal year, the Victoria Memorial Building, which houses the Museums of Natural Sciences and of Man, was closed for renovations and therefore not available to visitors; the National Gallery recorded 454,803 visitors, the Museum of Science and Technology, 512,147 visitors, the National Aeronautical Collection, which is part of the latter Museum, 105,147 visitors, and the Canadian War Museum, 319,241 visitors.

*The National Museum of Natural Sciences* contains divisions of botany, zoology, geology and palæontology. During the year 1970-71, thousands of specimens were added to its collection as a result of field trips, purchases, donations and exchanges.

The Museum staff was engaged during the year in 65 major research projects and 25 projects of lesser import. Field research included 35 different expeditions and excursions in widely scattered locations ranging from Baffin Island, the Mackenzie delta and Alaska in the north, to Florida, Panama, the Caribbean, the Sargasso Sea and Tierra del Fuego in the south. This work gave support to such research enterprises as the Polar Continental Shelf Project and the *Hudson* and *Sackville* expeditions undertaken by the Department of Energy, Mines and Resources. The Museum supports projects undertaken in universities by staff members or by research associates and provides financial assistance, research facilities and field work for several National Research Council post-doctoral fellows.

The Victoria Memorial Museum building, which houses the Museum of Natural Sciences, was closed in November 1969 for complete renovation and since then the staff has been intensively engaged in planning and designing the new display halls that are now being constructed. When the building is again open to visitors, part of it in 1972, the Museum will be in a position to more completely fulfil its mandate to inform and educate the public.

The Canadian Oceanographic Identification Centre of the Museum processes some 360,000 specimens each year, mainly for other departments of government.

The Museum staff produces five series of publications and assists in the preparation of audio-visual material.

*The National Museum of Man* contains divisions of Archaeology, Ethnology and History as well as the Canadian Centre for Folk Culture Studies and the Canadian War Museum. During the year ended Mar. 31, 1971, the Archaeology Division dug up some 100 sites across Canada (see also pp. 43-46), the emphasis being on salvaging sites that were in immediate danger of being destroyed by human or natural forces. Major projects on the prehistory of Canada's North and of West Coast Alaska dominated the non-salvage work, along with the surveying and testing of other areas. During the summer of 1971, an archaeological-ecological program was conducted at Wawa on the north shore of Lake Superior, which supplied employment for 100 resident students and accommodation and research for 2,000 transient students. The Ethnology Division continued its field studies with the Golden Lake Algonquin, the Koyukuk River Athapascans, the Odanak Abenakis, the Carrier-Chilcotin people of British Columbia and the Cree and Chipewyans of northern Saskatchewan but its activities were dominated by the Museum exhibition program and museology training. As in archaeology, salvage or rescue work continued to be the main focus of effort, as knowledge of traditional life dies with the older Indian and as man and nature destroy archaeological sites. The staff of the History Division, with the assistance of contract researchers, carried out studies on Canadian society and material culture since the beginnings of European colonization, including such subjects as public attitudes toward Indians in Western Canada before World War I, coal mining in Nova Scotia, the status of women in Upper Canada, lighting devices prior to electricity, Windsor chairs, Canadian-made stoves, and work of Canadian silversmiths. In addition, studies were begun as part of planning for permanent exhibits on such broad historical themes as urban life,

rural life, social structure, social change, and man and his environment in Canada. The Canadian Centre for Folk Culture Studies awarded 15 contracts related to the folklore of Canadian ethnic groups. Among the groups studied were the Sikhs and Chinese in British Columbia, the Germans in Manitoba, the French and Ukrainians in Manitoba and Saskatchewan, and the Negroes in Nova Scotia.

During 1970, the Canadian War Museum was refurbished and the Annex prepared for re-opening with new exhibits on the evolution of artillery, the development of armoured fighting vehicles and the air defence of Britain in the First World War. Militaria and memorabilia continued to come from private donors and many new articles (vehicles, medals and uniforms) were added. Three significant accessions were made—a George Cross, two Victoria Crosses won by Canadians, and an armoured German staff car believed to have been used by Field Marshall Goering.

A new section was established to plan and co-ordinate the interpretation and exhibition program in the permanent exhibit halls and to organize a travelling exhibition program. Plans for all permanent and temporary exhibit halls were expanded and designs for the orientation, archaeology and ethnology halls were well under way by the end of the year. The travelling exhibition program included research and fabrication of four major displays of Canadian Eskimo drawings and sculpture, military history and social history which appeared in 13 cities from Vancouver to Glace Bay in Canada and New York to Fort Worth in the United States. The most successful were the Oonark-Pangnark display and the History of Early Domestic Lighting in Canada display for which requests came from all across the Continent. As the year ended, several new exhibits were being planned, including one on Eskimo prehistory to tour Eskimo communities.

Since the closing of the Victoria Memorial Museum in November 1969 for extensive renovation and display redevelopment, exhibit planning and other display work for the seven major halls and for the travelling exhibition program occupied a large portion of staff time, reshaping as well as curtailing to some degree research and field work. Staff scientists attended a number of national and international conferences, lectured widely, acted as advisers for other institutions and countries, taught university courses, trained students, participated in planning exhibits in other museums and assisted with projects in other Canadian centres. The Museum hosted the first Athapaskan Conference, the annual meeting of the Canadian Archaeology Association and a three-day seminar for archaeology students. During the year the staff published 54 articles and books and had another 52 in preparation.

*The National Museum of Science and Technology* has the function of a cultural-educational institution, designed to bring scientific literacy to the visiting public and to familiarize them with the language, events and history of science. In the museum, visitors are confronted principally by demonstrations of scientific principles and displays which, by means of artifacts and texts, correlate these principles with the development of technology. All this is done with particular emphasis on the technologies of ground transportation, aviation, agriculture, shipping and industrial technologies which have been so closely fused to the history of this nation.

The Museum displays are colourful and inventive, designed to involve people in the learning process. Visitors are asked to participate in experiments and in making things work; to explore the technological park; to ride in a double-decker bus or to ride down a track in a gondola car; to push a button or wind a crank to learn some physical law; or to sit in the driver's seat of a giant steam locomotive or a farm tractor. Museum collections are made available to other museums in Canada and abroad, with a view to bringing the story of science and technology to the widest audience possible. The National Aeronautical Collection, part of the Museum, is located in aircraft hangars at Rockcliffe, east of Ottawa. There are displayed some 50 of Canada's national collection of about 80 aircraft, together with engines and other artifacts relating to the development of aviation, so important in Canada and to which so many Canadian contributions have been made.

The Museum sponsors lectures on the history of science and technology. A systematic program of school tours for children in Ontario and Quebec has been developed to fit in with curriculum requirements. Broadly speaking, all programs are built around three general themes relating to national development—how man has overcome space and time in this vast land by various methods of transportation and communication; how man has changed his environment with science and technology and the tools he has built and used; and how man's living habits have changed as he moved from sod hut and log cabin existence to his present sophisticated environment. The Museum is planning publications to expand the content of its exhibits and to give popular accounts of Canadian scientific and technological achievements. The emphasis in the Museum is on being a bright, alert and lively showplace of the development and trends in modern science. Thus, new exhibits and temporary exhibits are added each year to make an approximate 20-p.c. annual change.

Thus, the National Museum of Science and Technology of Canada is in the vanguard of modern museums throughout the world which are emphasizing cultural-educational functions in lieu of traditional museum functions. Visitors to this Museum can have a meaningful experience in Canadian scientific and technological developments as well as in world advancements in these fields.

## **Section 2. Educational Functions of the Canadian Broadcasting Corporation**

The educational role of the CBC is largely informal and involves a number of different activities.

**School and Youth Programs.**—The CBC provides facilities and production assistance for radio and television school programs at the primary and secondary school levels. These programs are broadcast in the general program services of the CBC but are intended for classroom use. In the course of a year, CBC radio and television networks carry some 4,000 school programs.

Programs for national distribution on the English networks are designed as enrichment material and are based on elements common to all provincial curricula. They are planned in co-operation with a special committee of the Council of Ministers of Education, including representatives of the teaching profession. Until 1970, the CBC paid the entire cost of the national school programs. In 1971-72 this was changed to a cost-sharing arrangement.

At the provincial level, programs follow school curricula closely and are planned in co-operation with the various provincial departments of education. They are financed on a cost-sharing basis.

In addition to school broadcasts, CBC radio and television produce a variety of entertainment and information programming for children and young people. Both French and English services present programs of stories, songs, puppets, and other learning and play activities for pre-schoolers, plus a variety of material for older children including music, comedy, student quiz programs, adventure series, magazine and interview shows, cartoons and documentary films. CBC Northern Service stations produce regular programs for children in their own areas, including some in Indian and Eskimo languages. In all services, programs for teenagers involve the young people themselves in planning and production, and reflect their own interests and attitudes.

**ETV Stations.** Because broadcasting facilities come under federal jurisdiction and education under provincial authority, the CBC was asked to act as licensee for a UHF television station in Toronto carrying programs of the Ontario Department of Education. The station, CICA-TV Channel 19, opened in September 1970. By agreement between the CBC and the department, the CBC provides, operates and pays for (on a fully recoverable basis) the transmitter, antenna and associated technical facilities, while the department supplies and pays for all programs.



Another co-operative arrangement involves CBXFT, the CBC's French-language television station in Edmonton which opened in March 1970. The station leases about 40 hours a week of its program time to MEETA, the Metropolitan Edmonton Educational TV Association. During some periods of the day, the station carries the regular French network programming of the CBC. At other times, it transmits the English-language educational programs prepared and presented by MEETA, representing the Alberta Department of Education, the Edmonton public and separate school boards, the University of Alberta and school boards in surrounding areas. This arrangement is to continue for a period of up to three years.

**Adult Education and Information Programs.**—For the adult audience, CBC information programs include daily news and current affairs coverage, plus special-interest programs in areas such as science, literature, art, music, film, language, agriculture and resources, consumer affairs, home and family interests, the social sciences, business and labour, Indian affairs, and religion and philosophy.

The CBC French services, both radio and television, offer a number of credit courses in conjunction with the Université de Moncton, the Université Laval, the Université de Sherbrooke, the Université de Montréal and the University of Sudbury. Program costs are shared.

Stations of the CBC English networks have periodically offered informal instruction programs in conversational French.

The educational projects of the CBC Northern Service include a variety of talks, panel discussions, open-line shows and other information programs in the Indian and Eskimo languages as well as in English and French. Most deal with subjects of immediate practical interest such as health and social welfare, job opportunities, home economics, budgeting, banking, the electoral process and income tax. Some of these programs are developed in co-operation with local adult education agencies or community action groups.

Other Northern Service programs preserve and pass on the folklore and history of the North by means of storytelling, interviews, music and documentaries. Still others provide the day-to-day contacts and services so important to the scattered settlements of the North—world and local news, weather reports, community events and personal and public messages.

One of the most popular features is a form of "instant theatre" in which Indian and Eskimo people of the community improvise radio dramas in their own languages. These plays reflect in a lively and vivid way the personal and social problems facing the original peoples of the North in their encounters with urban and white society.

For newcomers to the North, the Northern Service has introduced "Eskimo for Beginners", a series to teach useful Eskimo words and phrases, and a similar program is being developed to teach Cree.

**Resource Material.**—Both the French and English services of the CBC publish and sell selected program texts in book form. The English-language publications are mainly from lecture and discussion series broadcast on CBC radio and are widely used in schools and universities. Some spoken-word recordings are also produced, such as readings by Canadian poets. The French-language material available for sale includes the texts of certain interviews and talks, as well as records, books, games and toys derived from popular children's programs.

CBC Learning Systems, a section of the English-Language Publications Branch, has an extensive catalogue of sound tapes, available on reels or cassettes, from selected radio talks and documentary series. The tapes are available for sale to educational institutions for non-broadcast, non-commercial use. The availability of CBC educational films for non-broadcast use has been limited by contractual and other considerations.

### Section 3.—The Canada Council

The Canada Council was created in 1957 by an Act of Parliament, to "foster and promote the study and enjoyment of, and the production of works in the arts, humanities and social sciences". It carries out its task mainly through a broad program of fellowships and grants of various types. It also shares responsibility for Canada's cultural relations with other countries in co-operation with the Department of External Affairs. The Council is made up of a chairman, a vice-chairman and 19 members, all appointed by the Governor in Council. Its administration is headed by a director and an associate director, also appointed by the Governor in Council, and it meets at least five times a year.

Within the limits of the Canada Council Act, the Council enjoys a large measure of autonomy, setting its own policies and developing and carrying out its own programs in consultation with the community of artists and scholars. The Council reports to Parliament through the Secretary of State and also appears before such parliamentary committees as the Public Accounts Committee and the Standing Committee on Broadcasting, Film and Assistance to the Arts.

**Income.**—The Council's income is derived from three sources: an annual grant of the Canadian Government which amounted to \$24,200,000 for the year ended Mar. 31, 1971; the Endowment Fund established by Parliament when it created the Council, which is expected to yield \$4,900,000; and private funds willed or donated to the Council and used in accordance with the wishes of the donors.

**Assistance to the Humanities and Social Sciences.**—Assistance to the humanities and social sciences accounts for the larger part of the Council's budget, an amount of \$17,757,000 in 1969-70. In support of research training, the Council awarded 2,368 doctoral fellowships totalling \$10,786,000; for research work, 135 leave fellowships totalling \$1,018,000 and \$4,282,000 in research grants; for research communication, a total of \$796,000 in assistance to learned meetings, visiting professors, attendance of Canadian scholars at international conferences, and publication of learned journals and scholarly manuscripts.

**Assistance to the Arts.**—In the arts, the Council spent \$9,714,000 of which \$2,036,000 was used to finance some 900 bursaries and awards to individuals in the various art forms, and \$7,382,000 was applied to grants to organizations, including \$2,007,000 for music, \$2,566,000 for theatre, \$1,504,000 for dance and opera, \$1,077,000 for the visual arts, and \$162,000 for writing and publication.

**Special Programs.**—The Canada Council administers, on behalf of the Canadian Government, part of a program of cultural exchanges with France, Belgium, Switzerland, the Federal Republic of Germany, Italy and the Netherlands, under which it awarded fellowships and grants totalling \$832,000 to citizens of those countries in 1969-70. The Council also administers the funds of the Canadian Cultural Institute in Rome, created in 1967 by an agreement between Canada and Italy. The Institute's income of some \$25,000 a year is used to provide fellowships for Canadian artists and scholars wishing to work or study in Italy.

The Izaak Walton Killam Memorial Awards of the Canada Council were inaugurated in 1967 with funds from the Killam estate. These awards go to support a few scholars of exceptional ability engaged in research projects of far-reaching significance. In 1969-70, there were 24 awards made under this program, totalling \$525,000.

**Prizes and Special Awards.**—Under its power to "make awards to persons in Canada for outstanding accomplishments in the arts, humanities or social sciences", the Council annually awards the \$15,000 Molson prizes financed by a fund provided by the Molson Foundation. The amount of the fund was raised from \$600,000 to \$800,000 during 1969-

70, enabling the Council to raise the number of annual awards from two to three. The Canada Council Medal, which served more or less the same purpose as the Molson prizes, was abolished. Again that year, the Governor General's Literary Awards, financed by the Council, were awarded to six Canadian writers.

**Unesco.**—The Canada Council Act provides for certain functions in relation to the United Nations Educational, Scientific and Cultural Organization. It has accordingly established a National Commission for Unesco and provides its secretariat and budget. As an agent of the Council, the Canadian Commission for Unesco co-ordinates Unesco program activities abroad and administers a modest program in furtherance of Unesco objectives. In 1969-70, the Council spent approximately \$200,000 through the National Commission for these purposes.

### Section 4.—Provincial Assistance to Artists and Cultural Organizations

Provincial governments, as well as other levels of government and industry, have during the past few years become more and more aware of the significance of the arts in the life of the community. All provinces except Newfoundland, Prince Edward Island, New Brunswick and Manitoba now give some form of financial assistance to artists (writers, poets, painters and sculptors), cultural organizations or community councils. The assistance provided by each province is described in the following paragraphs.

**Nova Scotia.**—This province has no specific legislation authorizing financial assistance for cultural advancement but the Department of Education and several other departments give grants to a number of organizations, and payments are made under the Provincial Finance Act from departmental appropriations.

In the year ended Mar. 31, 1970, grants given by the Department of Education went to Neptune Theatre, \$85,000; the Atlantic Symphony, \$45,000; the N.S. Museum of Fine Arts, \$15,000; the Maritime Conservatory of Music, \$7,500; the N.S. Drama League, \$5,400; the N.S. Festival of the Arts, \$4,000; the N.S. Talent Trust for scholarships, \$2,000. Smaller grants, totalling \$1,850, went to the N.S. Folk Arts Council, the Halifax Music Festival Assoc., and the Canadian Theatre Center. Department of Finance grants were given to the Atlantic Symphony, \$15,000; the Antigonish Highland Society, \$2,000; and the Acadian Festival \$700. The Department of Public Service Youth Agency granted \$5,000 to the N.S. Pipers and Pipe Band Association, and Trade and Industry granted \$1,000 to the Annapolis Valley Blossom Festival.

The Department of Education's Fine Arts and Handcrafts Section operated under a budget of \$129,500 and disbursed small grants for instruction purposes to organizations to the amount of \$10,000. The N.S. Museums Section of the Department of Education operated under a budget of \$455,000 and disbursed grants totalling \$67,000 to local museums and historical societies. Other expenditures of the Department of Education were: N.S. Provincial Libraries, \$997,000; Publications and Information, \$130,000; television education, \$164,000; visual education, \$54,800; and radio education, \$11,300.

**Quebec.**—The Quebec Department of Cultural Affairs, established in 1961, has the task of promoting the arts in the province and of encouraging the extension of the French culture outside of the province. The first function is carried out by the Creative Arts Branch which provides assistance to the arts in the form of awards, scholarships or grants to individuals and organizations. In the year ended Mar. 31, 1971, the amount expended for this purpose was \$4,741,587, of which \$331,785 was granted to individuals. There were 54 grants valued at \$150,000 given to individuals for creative projects; \$78,095 was used to pay the travelling and living expenses of 57 individuals for study outside of Quebec or participation in international competitions, most of them working under the France-Quebec cultural agreement; \$70,000 was given to assist authors with the publishing of



research works and to purchase books directly from the author at full price; awards for literary excellence amounted to \$33,750, including the \$5,000 David Award, which is Quebec's highest literary award, and \$20,000 for literary works published during the preceding year; \$15,000 was given in prizes for works of art and \$8,000 was divided among non-prize winning participants in competitions.

Grants to organizations included: \$50,000 for the purchase of volumes for libraries or to be given as awards to students; \$61,400 to associations of publishers, writers, poets, etc.; \$1,002,600 to 22 theatrical groups; \$937,137 to choirs, orchestras and other musical organizations; \$225,500 to visual arts organizations; \$175,000 to art and cultural centres; \$1,550,000 to 115 public libraries; \$266,000 to 11 French-speaking Quebec organizations working toward the improvement and extension of the French language; and \$172,000 to 29 other cultural organizations. Also, grants amounting to \$78,000 were given to 24 organizations located outside of Quebec in Canada and in the United States, which were working toward the extension of the French language in their respective areas.

Other Branches of the Department are concerned with the expansion of the French fact throughout North America and with extending cultural exchanges between Quebec and France; with providing teaching and administrative services for music and drama conservatories; with organizing an efficient and cohesive library system throughout the province; with co-ordinating the activities of the many cultural organizations throughout the province; with preserving its architectural, artistic and historic heritage through technical advice and grants to property owners; with the operation of museums; and with the enrichment of both spoken and written French.

**Ontario.**—The Ontario Government passed legislation in 1962 (SO 1962-63, c. 6) establishing the Province of Ontario Council for the Arts, which consists of a chairman, a vice-chairman and ten other members, all appointed by the Lieutenant-Governor in Council. It is the function of the Council to promote the study and enjoyment of and the production of works in the arts and to such end may (1) assist, co-operate with and enlist the aid of organizations whose objects are similar to the objects of the Council; (2) provide through appropriate organizations or otherwise for grants, scholarships or loans to persons in Ontario for study or research in the arts in Ontario or elsewhere or to persons in other provinces or territories of Canada or any other countries for study or research in the arts in Ontario; and (3) make awards to persons in Ontario for outstanding accomplishments in the arts.

In the year ended Mar. 31, 1971, a total of \$1,963,552 was dispensed by the Council in the form of grants or project assistance. Of that amount, \$1,781,936 was given in grants to 89 organizations, the largest of them to the National Ballet Guild of Canada, \$145,000; the Toronto Symphony Orchestra Association, \$145,000; the Canadian Opera Company, \$100,000; the Stratford Shakespearean Festival, \$415,336; and the St. Lawrence Centre Theatre Company, \$228,212. Twenty-nine projects were assisted, the largest amounts going to the Co-ordinated Arts Services, \$50,000; the Dominion Drama Festival, \$31,000; the Ontario Federation of Symphony Orchestras, \$13,000; the Resident Musician Program, \$36,000; Ontario Sound '71, \$14,414; and Concerts and Artists, \$12,190.

In addition, the Ontario Department of Energy and Resources contributed \$124,500 toward the McMichael Conservation Collection of Art at Kleinburg, and the Department of University Affairs contributed \$3,625,000 to the Royal Ontario Museum, \$610,000 to the Art Gallery of Ontario and \$906,000 to the Ontario College of Art.

**Ontario Place.**—The building of Ontario Place on the Toronto waterfront is one of Ontario's greatest contributions to the arts in the province. It was opened on May 22, 1971 and up to September of that year more than 2,000,000 people from Ontario and every part of Canada and the world visited this new showcase of entertainment and the arts.

The skills of Ontario film-makers are on view at Cinesphere, the domed 800-seat theatre. A world-wide "first" has been the introduction of the giant-screen film, *North of Superior*,

filmed by Graeme Ferguson of Galt, Ont. The film utilizes an Ontario-developed process which projects a 60- x 80-foot image on a curved screen, literally engulfing the audience in the sights and sounds of the picture. Other Ontario-made films were especially produced for Cinesphere, including *Seasons in the Mind*, which highlights eastern Ontario, *Home by the Waters* showing the thousands of miles of the province's waterways, and *Where the North Begins*, a study of the vital people of Ontario's north.

In the Pavilion, four pods of the steel-stilted structure house multi-media exhibits created by Ontario writers, designers, artists and film-makers. These tell the story of Ontario's past, present and future, using three-dimensional film and sound, slides, inflated forms and artifacts.

In the Forum, an 8,000-capacity amphitheatre, is displayed almost every imaginable type of artistry. The Toronto Symphony was heard by up to 10,000 people each night during the 1971 summer season and the National Ballet of Canada presented to thousands of visitors the best Canadian talent in this field. The finest performers and artists were brought before the public through rock and jazz concerts, military bands, organ recitals, choirs, variety programs, country and western programs and art shows. The Forum has also been a focal point for the introduction of deserving Canadian talent. Early in the year in centres throughout Ontario, adjudicators listened to hundreds of performers in every field of entertainment and from these many were selected and given the opportunity of appearing in a series of weekly Talent Nights held during the Ontario Place season.

**Manitoba.**—The Manitoba Arts Council was formed by legislation passed in 1965, providing for a chairman, vice-chairman and 10 members appointed by the Lieutenant-Governor in Council, with the objective of promoting "the study and enjoyment of the production of works in the arts, assisting and co-operating with those organizations involved in cultural development, providing for grants, scholarships or loans to Manitobans for study or research in the arts, and recognizing outstanding accomplishments in the arts". Working on a budget of \$254,000, the Manitoba Arts Council in the year ended Mar. 31, 1971, made grants to 32 organizations, including \$48,000 to the Manitoba Theatre Centre, \$30,000 to Rainbow Stage, \$52,000 to the Royal Winnipeg Ballet, \$39,000 to the Winnipeg Art Gallery, and \$52,000 to the Winnipeg Symphony Orchestra.

The Manitoba Arts Council has served as the advisory body to the Metropolitan Corporation of Greater Winnipeg in distribution of its funds to assist cultural organizations, and worked closely with the business community in setting up the First Canadian Business and the Arts Conference, held in 1971.

**Saskatchewan.**—In 1949, the Saskatchewan Arts Board was established by Act of the Legislature, its stated aim being "to provide opportunity for the people of that province to participate in visual art, music, drama, literature, handicrafts and other cultural pursuits; to stimulate and encourage this participation and appreciation". The means of achieving these aims were left to the judgement of the Board.

The Saskatchewan Arts Board is an autonomous body, funded by the provincial government but functioning independently, composed of not less than seven nor more than 15 volunteer members appointed annually by the Lieutenant-Governor in Council. These members are from all parts of the province but represent no specific areas nor any specific disciplines in the arts. The work of the Board is carried out by a staff of two consultants and five office personnel, under the direction of the Executive Director. Experts in various fields of the arts are engaged for specific projects where their special talents are required.

Over the years, handicraft, visual and performing arts programs have been expanded to the point where in some areas they have reached the professional level. Workshops, lectures and seminars at an advanced level have been sponsored by the Board, and considerable assistance has been given to local arts and crafts organizations in sponsoring similar projects at a local level. In most cases, the Board is not an instigator but prefers to assist established organizations in carrying out their own programs.

A highly successful Saskatchewan Summer School of the Arts, operated annually by the Saskatchewan Arts Board at Fort San, offers one-to-four-week courses in band, orchestra, stage band, choral singing, piping and drumming, highland and ethnic dancing, ballet, painting, pottery, acting, creative writing and weaving, with instruction by highly qualified teachers.

For five years from 1965, the annual month-long Saskatchewan Festival of the Arts focused attention on the arts in communities throughout the province by presenting top-calibre artistic performances and exhibitions. This Festival concept has been replaced by similar programs planned by individual communities to meet their specific needs.

Each year, the Board has provided financial assistance to individual provincial artists to help them further their artistic training, or to establish themselves at a professional level. Individual assistance grants are based primarily on financial need, with scholarship and artistic ability as important factors. Emphasis is placed on assisting those in undergraduate studies or those striving to achieve professionalism.

Financial assistance has also been extended to art galleries, theatrical groups, music societies and orchestras, provincial arts councils and a number of arts organizations, mostly within the province but some at a national level.

**Alberta.**—The Cultural Development Branch of the Department of Culture, Youth and Recreation was begun after an Act of the Legislature was passed in 1946 providing for "encouragement of the cultural development of the people of this Province". The Act has since been amended several times to give it greater flexibility. The Branch is interested in the promotion of all forms of art and public libraries. Its program is intended (1) to give opportunity to the public to witness the best in performing arts tours, exhibitions, etc., in order to gain their initial excitement and interest in the various modes and expressions in the arts; (2) to conduct training courses at regular intervals for a variety of leaders, with special emphasis on in-service training for teachers in the public school system and instructors at special institutions, which have programs that develop arts according to the needs of the individual, such as those for the mentally and physically handicapped, the aged, or penal institutions; (3) to provide consultative services for cultural organizations throughout the province; and (4) to give financial assistance to individuals, local amateur and professional institutions and provincial government organizations whose aims are the development of the arts. Awards to individuals wishing to further their training in some form of the arts amount to \$50,000 annually. The budget of the Branch for the year ended Mar. 31, 1970 was over \$1,250,000.

**British Columbia.** The British Columbia Cultural Fund was set up by statute in 1967. That Act set aside \$5,000,000 in an endowment-type fund, the interest from which was to be spent "for the stimulation of the cultural development of the people of the Province". In September of that year, an Advisory Committee was established to receive applications for cultural grants and to report their recommendations to the Department of Finance for the issuance of the necessary funds. In 1969, the amount of the endowment was raised to \$10,000,000.

Grants totalling approximately \$155,000 were made from the Fund to some 50 Community Arts Councils throughout the province in 1970, and grants to major organizations amounted to \$466,575. For example, grants were made to such organizations as: the Vancouver Opera Association, \$40,000; the Victoria School of Music, \$8,500; the Victoria Symphony Society, \$24,800; the Vancouver Symphony, \$91,500; the Vancouver Art Gallery, \$32,240; the Victoria Art Gallery, \$10,500; the Playhouse Theatre, \$60,000; the Metro Theatre, \$31,500; the Bastion Theatre, \$30,000; the Canadian Theatre Centre, \$1,000; the National Theatre School, \$3,500; and the National Youth Orchestra, \$2,000.



In addition, the Advisory Committee continues to support the Indian population with their various projects in the cultural fields. Scholarships are awarded to individuals enrolled in nationally and internationally accepted schools of dance, theatre or music.

During 1970, the British Columbia Bands and Choirs Championships were held under the sponsorship of the British Columbia Cultural Fund. The province was divided into 12 regions for the purpose of regional competitions in six different categories: junior secondary school bands, senior secondary school bands, community bands, junior secondary school choirs, senior secondary school choirs and community choirs. The provincial finals were held in Vancouver in May 1971; all expenses including transportation, accommodation and meals for the finalists were met by the British Columbia Cultural Fund.

It should be noted also that a certain amount of provincial assistance, other than that provided by the Cultural Fund, was given to cultural organizations during 1970 but the total amount of such assistance is not available.

## Section 5.—Library and Archive Services

### Library Services

**The National Library.**—The National Library of Canada came into existence formally on Jan. 1, 1953 by Act of Parliament. On the same date it absorbed the Canadian Bibliographic Centre, which had been engaged in preliminary work and planning since 1950. The Library is now governed by the National Library Act, 1969 (RSC 1970, c. N-11) which broadened the powers of the National Librarian to whom is assigned the responsibility of co-ordinating government library services. The Act established a National Library Advisory Board consisting of 15 members.

The Library was housed for a long period in inadequate temporary quarters that limited its collections and activities. Construction of a permanent building, designed to accommodate both the National Library and the Public Archives, began in 1963 and was completed in the spring of 1967. The new structure, which has a floor area of 13 acres and was equipped initially with 81 miles of steel shelving, was opened formally by the Prime Minister on June 20, 1967. The book collection now consists of more than 400,000 volumes, supplemented by microcopies of more than 100,000 additional titles. Newspaper files formerly in several locations have been brought together and now form the largest collection of Canadian newspapers in Canada.

The Library compiles and publishes *Canadiana*, a monthly catalogue of new books and pamphlets relating to Canada; 12,000 to 13,000 titles are listed each year.\* *Canadiana* includes details of trade publications, official publications of the Government of Canada and the ten provinces, films, filmstrips and phonograph records produced in Canada.

The *Canadian Union Catalogue* lists over 10,000,000 volumes in about 300 government, university, public and special libraries in all provinces. New accessions (which numbered over 1,200,000 in 1969-70) are reported regularly, and the Union Catalogue thus forms a continuously up-to-date key to the main book resources of the country. During the year ended Mar. 31, 1971, the Reference Division was asked to locate more than 100,000 titles, and it is noteworthy that copies of 77 p.c. of them were found in Canadian libraries.

The Library has published a union list of serials in the fields of the humanities and social sciences currently received by Canadian libraries. This list is a first step toward a complete union list of such serials in the humanities and social sciences that will complement the *Union List of Scientific Serials in Canadian Libraries* published by the National Science Library. The Library is also preparing for early publication a retrospective *Bibliography of Canadiana, 1867-1900*, which will list more than 25,000 titles.

\* A list of 400 selected titles of "Books About Canada", prepared by the National Library, appears in Chapter XXVI of this volume.

**The National Science Library.**—The functions and services of the National Science Library, which is administered by the National Research Council Library, are described in Chapter VIII on Scientific and Industrial Research, pp. 451-452.

**Public Libraries.**—Public libraries in Canada are organized under provincial legislation which specifies the method of establishment, the services to be provided and the means of support. Municipalities may organize and maintain public libraries or join together to form regional libraries according to provincial legislation. Provincial public library agencies advise local and regional libraries and distribute grants as provided.

Table 2 gives summary results of the annual public library survey for 1969, with comparable totals for 1967 and 1968. Book circulation was 92,910,068, or 5.8 per person served. The current operating payments of all public libraries amounted to \$51,867,000, or \$3.22 per person served compared with \$2.99 in the previous year. The full-time staff numbered 4,573 in 1969, of whom 998 or 21.8 p.c. were professional librarians.

## 2. —Summary Statistics for All Public Libraries, 1969, with Totals for 1967-69

Province or Territory	Population Served	Libraries	Stock	Circulation	Current Operating Payments	Full-Time Staff
	No.	No.	No.	No.	\$'000	No.
Newfoundland.....	514,000	3	833,788	2,054,833	630	85
Prince Edward Island.....	110,000	1	113,022	176,839	79	7
Nova Scotia.....	629,996	11	676,630	2,455,344	1,532	149
New Brunswick.....	404,043	9	390,074	1,845,869	691	56
Quebec.....	3,472,266	106	3,709,169	8,360,329	5,957	495
Ontario.....	6,829,078	291	11,203,620	47,606,438	27,889	2,095
Manitoba.....	733,270	28	994,908	4,447,567	1,936	200
Saskatchewan.....	642,129	41	1,128,564	4,004,068	2,603	234
Alberta.....	1,111,250	154	2,169,318	7,420,082	4,019	425
British Columbia.....	1,595,699	77	3,080,378	14,448,887	6,281	807
Yukon Territory.....	15,000	1	55,708	55,708	108	11
Northwest Territories.....	32,000	1	19,065	34,104	142	9
<b>Totals, 1969.....</b>	<b>16,088,731</b>	<b>723</b>	<b>24,374,244</b>	<b>92,910,068</b>	<b>51,867</b>	<b>4,573</b>
<b>1968.....</b>	<b>15,653,713</b>	<b>716</b>	<b>23,008,802</b>	<b>88,586,493</b>	<b>46,844</b>	<b>4,348</b>
<b>1967.....</b>	<b>16,100,496</b>	<b>855</b>	<b>21,634,868</b>	<b>81,788,829</b>	<b>41,154</b>	<b>3,838</b>

**Libraries in Universities and Colleges.**—Libraries in 73 universities (including four-year affiliated or associated institutions) having an enrolment of 100 or more full-time students reported, for the academic year 1969-70, a total of 20,583,283 volumes or 73.2 per full-time student. Expenditures of university libraries amounted to \$69,824,608, or \$248.14 per student. The total full-time staff of the libraries numbered 6,011, of whom 1,417, or 23.6 p.c., were professional librarians.

Libraries in 99 colleges (post-secondary institutions such as CEGEPs, colleges of applied arts and technology, teachers' colleges, etc.) reported a total book stock for 1969-70 of 2,198,550 volumes or 23.31 per full-time student. Expenditures of these libraries amounted to \$6,701,877 or \$71.00 per student. Total library staff was 559, of whom 154, or 27.6 p.c., were professional librarians.

## 3.—Libraries in Universities and Colleges, Academic Year 1969-70

NOTE. Because of a change in classification of institutions, comparable data for previous years are not available.

Province	Institutions Reporting	Full-Time Enrolment	Volumes of Books, Periodicals and Pamphlets	Total Full-Time Staff	Total Operating Expenditures
	No.	No.	No.	No.	\$
<b>Universities—</b>					
Newfoundland.....	1	5,157	232,191	74	1,328,938
Prince Edward Island.....	1	1,566	101,718	24	374,332
Nova Scotia.....	7	10,619	934,712	232	2,562,660
New Brunswick.....	4	8,823	628,497	156	1,842,468
Quebec.....	17	61,220	4,814,569	1,314	13,343,328
Ontario.....	27	107,724	8,681,902	2,654	30,937,475
Manitoba.....	4	15,273	1,043,891	210	2,421,886
Saskatchewan.....	4	14,523	737,031	119	2,597,538
Alberta.....	3	26,565	1,411,590	545	6,597,839
British Columbia.....	5	29,921	1,997,184	683	7,818,144
<b>Totals, Universities.....</b>	<b>73</b>	<b>281,391</b>	<b>20,583,285</b>	<b>6,011</b>	<b>69,824,608</b>
<b>Colleges—</b>					
Newfoundland.....	2	756	16,879	6	66,300
Nova Scotia.....	4	1,174	91,250	22	192,881
New Brunswick.....	2	525	11,239	2	29,450
Quebec.....	36	40,413	1,194,741	243	2,369,197
Ontario.....	38	37,595	589,760	176	2,486,582
Manitoba.....	3	1,540	25,515	17	156,620
Saskatchewan.....	1	873	15,277	6	53,441
Alberta.....	5	4,531	89,805	35	382,238
British Columbia.....	8	6,917	164,084	52	965,168
<b>Totals, Colleges.....</b>	<b>99</b>	<b>94,324</b>	<b>2,198,550</b>	<b>559</b>	<b>6,701,877</b>

## The Public Archives

Provision for the creation of the Public Archives was first made by an Order in Council of June 20, 1872, which appointed an officer of the Department of Agriculture to take charge of historical archives. In 1903, the responsibility for old government records was transferred from the Secretary of State to the Department of Agriculture, and the head of the Archives was given the title of Dominion Archivist and Keeper of the Records. In 1912, the Archives became a separate department and was named Public Archives; it now operates under authority of RSC 1970, c. P-27. The Public Archives has a dual role. As a research institution, it is responsible for acquiring from any source all significant documents relating to the development of the country and of value to Canada, and for providing suitable research services and facilities to make this material available to the public. As an essential part of the government administration, it has broad responsibilities in regard to the promotion of efficiency and economy in the management of its records.

The Historical Branch is comprised of four Divisions. The Manuscript Division contains manuscript collections and public records. The manuscript collections include private papers of statesmen and other distinguished citizens, records of cultural and commercial societies, and copies of records in France, England and other countries relating to Canada. The public records consist of selected records of all departments and agencies of the Government of Canada. The Picture Division has charge of documentary paintings, water colours, engravings and photographs relating to people, historical events, places and objects. It also has an extensive collection of films and sound recordings. The Map Division has custody of thousands of maps and plans pertaining to the discovery, exploration and settlement of this country and its topography, as well as a large collection of current topographical maps of foreign countries. The Library contains more than 80,000 volumes on Canadian history, including numerous pamphlets, periodicals and government publications.



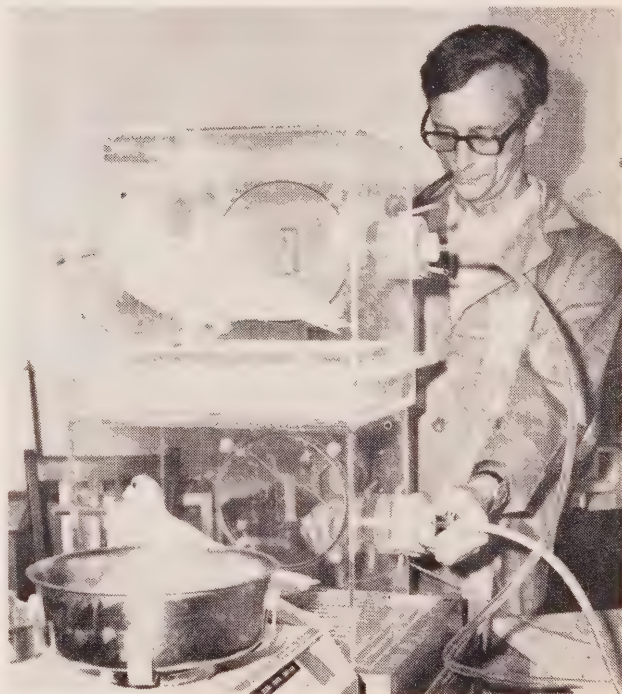
Although documents in the Archives may not be taken out on loan, they may be consulted in the building, and a 24-hour-a-day service is provided for accredited research workers. Reproductions of available material may be obtained for a nominal fee on request and many of the documents in the Manuscript Division are on microfilm which may be obtained on inter-library loan.

The Records Management Branch assists departments and agencies in the setting up and operation of their records management programs. Its service also includes recommendations and advice on scheduling and disposal of records. At the Ottawa, Toronto and Montreal Records Centres it provides storage, reference service and planned disposal of dormant records on an economical basis. Other regional centres are being established in major cities across Canada.

The Administration and Technical Services Branch, in addition to an extensive conservation and restoration program, provides a technical and advisory service on micro-filming to government departments and agencies. Microfilm work is done for departments at cost. It also provides a full range of services to the National Library.

Branch offices of the Public Archives are located in London, England, and Paris, France. The Archives also administers Laurier House as a historical museum.

*National Research Council biologists study the effects of stress, such as migration or exposure to cold, on birds subjected to persistent pollutants including DDT and similar chemicals. These compounds tend to accumulate in fatty tissue and remain relatively inactive until released by increased energy expenditure into the circulatory system.*



# CHAPTER VIII.—SCIENTIFIC AND INDUSTRIAL RESEARCH\*

## CONSPECTUS

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*The interpretation of the symbols used in the tables throughout the Year Book will be found on p. vii of this volume.*

## Section 1.—Organization of and Expenditures on Scientific and Industrial Research in Canada

The organization and distribution of the research and development effort in Canada are partially the result of certain characteristic problems of this country, especially its large area, its relatively small population and peculiar population distribution, and its unusual industrial structure. However, there are indications that certain major shifts in the previous pattern of effort may be close at hand, caused by the emergence of organizations concerned with science policy questions and the recent general recognition of the growing importance of science and technology to modern society.

Early research in Canada was related mainly to the primary industries. Geological mapping and agricultural research were almost the only areas of scientific activity until the beginning of the present century. In 1898, research and development in the field of fisheries was assigned to an independent honorary board (the Biological Board) which has continued until recently as the Fisheries Research Board. In 1916, the Federal Government set up the National Research Council, the early duties of which were to encourage and stimulate research in the universities and industry. It later undertook research

\* The introductory material appearing in the various Sections of this Chapter, except where otherwise credited, as well as Section 6 were prepared or revised (July 1971) by W. D. Bennett, Science Adviser, Science Council of Canada, and the statistical data were supplied by the Science Statistics Section, Education Division, Statistics Canada. Departmental and agency information was prepared as indicated.

activities with the establishment of its own laboratory system in the late 1920s and early 1930s. A great expansion in scientific research and development took place during the Second World War. The National Research Council assumed responsibility for research and development activity for the three Armed Services and for the development of atomic energy. After the War, in 1947, the Defence Research Board was set up in the Department of National Defence to take over the responsibility for military research and development (see Chapter XXV) and, in 1952, the Crown corporation Atomic Energy of Canada Limited was established to proceed with the development of atomic energy in Canada, and the National Research Council returned to its previous activities. Also, certain other Crown corporations, such as Eldorado Nuclear Limited, Polymer Corporation Limited, and Canada's largest national utility, the Canadian National Railways, developed important research programs. In 1960 the Medical Research Council was established in association with the National Research Council.

Until the 1950s, industrial research was slow to develop in Canada, although certain large industries, particularly the chemical industry and the pulp and paper industry, had long histories of successful research and development effort. Through the efforts of the industrial companies themselves and by means of various government-sponsored incentive programs, the industrial research and development effort in Canada has since grown and diversified considerably. In addition, provincial research councils were set up both before and after the War in several provinces, usually for the general purpose of improving the provinces' utilization of their resources and the production efficiency of their industries. Of these, the Ontario Research Foundation and B.C. Research (of the British Columbia Research Council), although established under provincial legislation, are self-governing institutions engaged in research and development on contract for manufacturers, departments of government and on their own account, and derive their current revenue mainly from sponsored research. Furthermore, the Pulp and Paper Research Institute of Canada (see Chapter XIII, Part I) is the one major research association that operates on a co-operative basis; its operating funds are provided by industry and its facilities by the Federal Government and McGill University, all three vitally interested in ensuring that this industry maintains its competitive position in world markets. Previously, the primary resource base of industry generally was not conducive to the establishment of industrial research laboratories. As well, the degree of foreign ownership of manufacturing companies in Canada undoubtedly had some influence on the development of industrial research, since Canadian subsidiaries of foreign companies had ready access to the research and development results of their parent companies. As a result of the consequent lack of incentives, all but a few of these subsidiaries refrained from establishing their own laboratories and from developing products specifically for the Canadian market. However, to meet the challenge of competition from other countries in the production of sophisticated modern items of manufacture, Canadian industry has increased its own scientific and technical investigations. The Sheridan Park Research Community, just outside Metropolitan Toronto, is an example of a recent concept for improving the efficiency of and expanding industrial research in Canada. A somewhat similar but more diffuse development took place earlier at Pointe Claire, near Metropolitan Montreal. Industrial research centres of this type facilitate applied research and development activities for the scientists and engineers involved by permitting ready interchange of non-proprietary scientific and technical information and access to a wide variety of instrumentation, equipment and skills. They also provide an attractive environment for skilled personnel, and thus increase Canada's potential for keeping its trained scientists and engineers. At Sheridan Park the research laboratories of 10 individual companies are in full operation and there is room for further corporate participants. A Conference Centre has been built and the community members have formed an association to promote and expedite many other mutually desirable arrangements.

A significant element in the training of scientists and engineers beyond the undergraduate level involves the research and development activities undertaken in the universities as part of their program of graduate studies. These research and development



activities are related directly to the educational process and are of great importance in the training of the skilled personnel needed for the development of Canada's economy; they have a further importance in that they create centres of basic research in Canada and therefore act as listening posts tuned to the progress of science and technology in other parts of the world.

Thus, there are three main sectors of research and development in Canada—research and development in government, in industry and in the universities. These three elements are covered in some detail in the remainder of this Chapter.

**Mechanism for the Federal Science Policy.**—In the federal sphere, the ultimate authority for policy on science resides in the Cabinet. To exercise this authority there was established by the National Research Council Act (RSC 1970, c. N-14) a Cabinet committee known as the Committee of the Privy Council on Scientific and Industrial Research. This Committee comprises those Cabinet Ministers having departments with major scientific responsibilities and certain other Ministers who have an indirect concern with scientific affairs. These federal departments and agencies advise the Privy Council Committee on the scientific aspects of their own departmental responsibilities and on the organization and support of research required for their own purposes. For many years, the National Research Council, on the other hand, advised the Committee on general science policy, particularly on research in the universities, in industry and in fields not specifically the responsibility of departments or agencies. Then, in 1949, the Privy Council Committee broadened the structure of its advisory mechanism by the addition of an Advisory Panel for Scientific Policy to which the Privy Council Committee could turn for joint advice on the formulation and conduct of government scientific policies. This panel consisted of senior officials from the science-based departments and agencies.

In 1964, as a result of the recommendations of the Royal Commission on Government Organization, a Science Secretariat was created in the Privy Council Office with the task of assembling and analysing information on the Government's scientific and technological activities, as well as on those of industry, the universities and the provinces, particularly in relation to the activities and concerns of the Federal Government. In 1971, the Science Secretariat became the Secretariat for Science Policy and Technology, with additional responsibilities. These concerned the establishment of program monitoring procedures and techniques for forecasting requirements in science and technology to enable formulation of policy and expenditure proposals; the development, in co-operation with other departments and agencies, of an information system capable of supporting these evaluations and proposals; and the co-ordination of government participation in national and international scientific and technological activities. The latter incorporated a responsibility already assumed by the Science Secretariat in advising the Department of External Affairs on the selection of Counsellors (Scientific) for placement in certain Canadian embassies abroad, and on the distribution of reports received from these Counsellors. The Director of the Secretariat, who is also Chief Science Adviser to the Government, acts as secretary to the Committee of the Privy Council on Scientific and Industrial Research.

In 1966, the Federal Government established the Science Council of Canada, a Crown corporation with the duty of independently assessing Canada's scientific and technological resources, requirements and potentialities and making recommendations thereon by the publication of reports. The Science Council is concerned both with research and development and with the use of science and technology in the solution of Canada's social and economic problems. It draws its membership from industry, the universities and government. The Science Council has had, since 1968, its own executive arm. For the first two years of its existence, it received professional and administrative support from the Science Secretariat.

Since its formation, the Science Council has initiated intensive studies of science and technology in Canada in order to provide a basis for advice on the formulation of policies

and plans for the future. It has published several reports based on commissioned studies of different areas of science and also published its own reports, making recommendations on these subjects (e.g., upper atmosphere and space, the proposal for an intensive neutron generator, water resources research, university research and the Federal Government, scientific and technical information dissemination, earth and marine sciences, research in fisheries, wildlife, forestry resources and agriculture, and a Canadian STOL air transport system). In addition, the Council has published its first science policy report in which it recommends that Canada focus its scientific and technological effort through the creation of Major Programs designed to help solve some of the country's social and economic problems. These Programs include, among others, a space program for Canada, water resources management and development, transportation, urban development, computer applications and scientific and technological aid to developing areas of the world. The Council is continuing its study of these and various other possible Major Programs from the viewpoints of cost-benefit, organization, direction and funding.

In 1967, a Senate Committee on Science Policy was formed to consider and report on the scientific policy of the Federal Government with the object of appraising its priorities, its organization, its budget and its efficiency. The proceedings of the committee form a valuable documentation of the current state of science policy and the first published report (Vol. I, December 1970) describes what the committee considers to be major deficiencies in the policy. Vol. II, which was released in January 1972, contains specific recommendations.

A more recent development (June 1971) has been the establishment of a Ministry of State for Science and Technology. The Minister responsible will formulate and develop policies with respect to the means of improving the application of science and technology in Canada, the co-ordination of science and technology within the Federal Government and the fostering of co-operation in science and technology with the provinces, with public and private organizations and with other nations. The Ministry incorporates the Secretariat for Science Policy and Technology and the Science Council now reports to the Government through the Minister of State.

**Research and Development Expenditures in Canada.**—In the past decade, Canada's gross expenditures on research and development (GERD) have more than doubled (Chart II) and government has remained the major source of research and development funds. In 1969, Canada's current expenditures on research and development amounted to about \$841,000,000, divided as shown in Table 1.

**1.—Current Expenditures on R & D in Canada, 1969**

Source of Funds	Sector of Performance			Total Funds
	Business Enterprise	General Government	Higher Education and Private Non-profit	
	\$'000,000	\$'000,000	\$'000,000	\$'000,000
Business enterprise.....	266	3	1	270
General government.....	56	304	99	459
Private non-profit.....	—	—	8	8
Higher education.....	—	—	80	80
Foreign.....	19	3	2	24
<b>Totals, All Sources.....</b>	<b>341</b>	<b>310</b>	<b>190</b>	<b>841</b>

CHART I

## EXPENDITURES ON R AND D BY PERFORMER

YEARS ENDED MAR. 31, 1967-78

MILLIONS OF DOLLARS

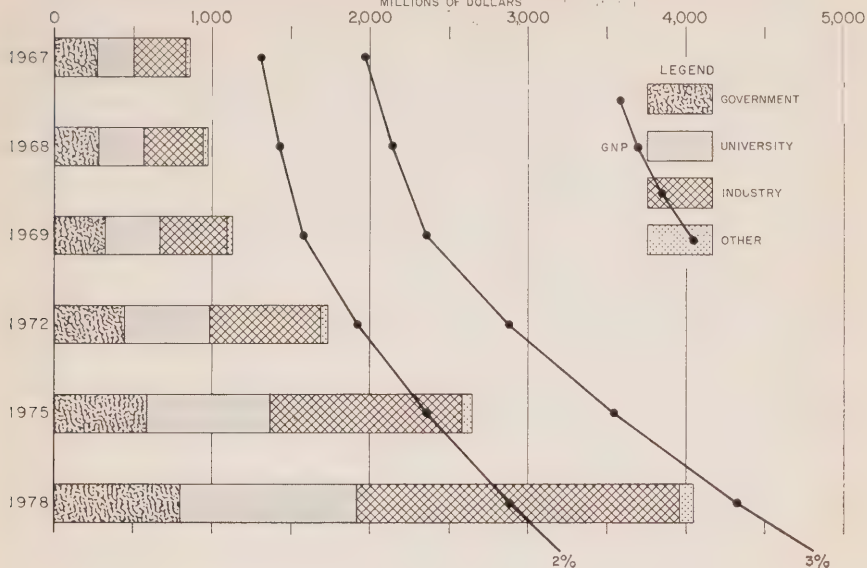
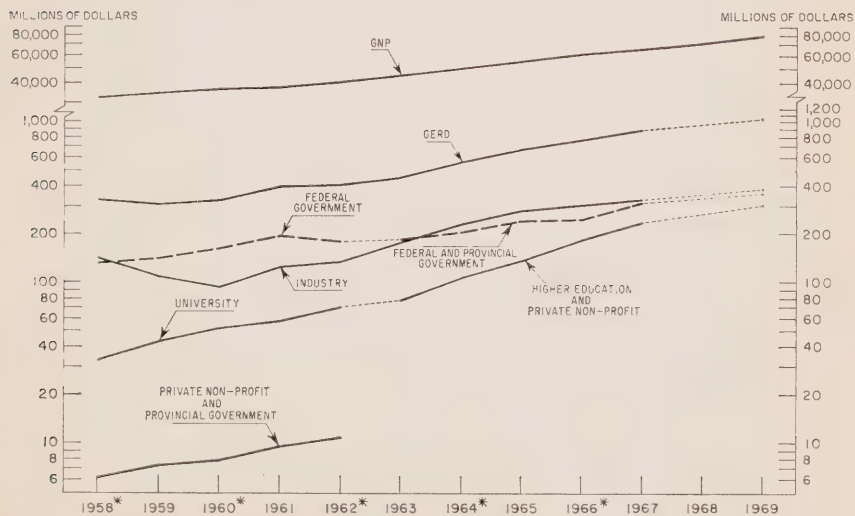


CHART II

## GNP, GERD AND EXPENDITURES ON R AND D BY SECTOR

YEARS ENDED MAR. 31, 1958-69

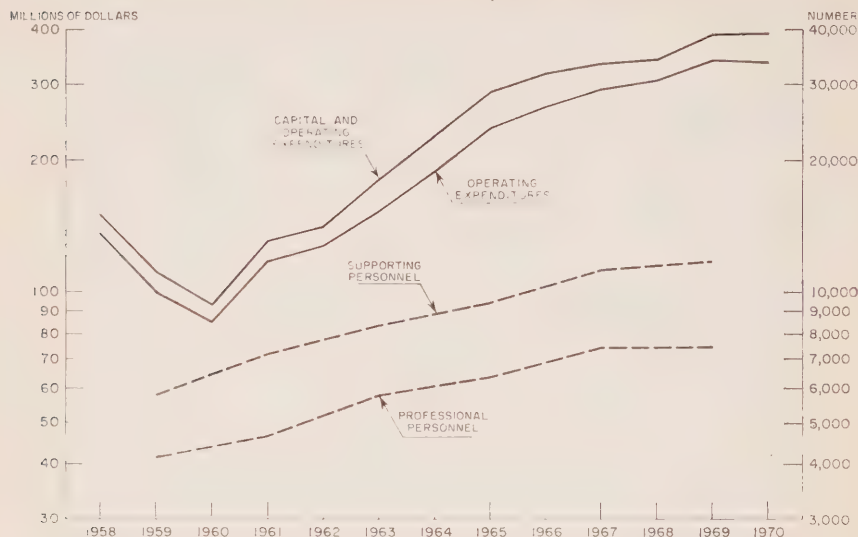


\*GERD AND EXPENDITURES ON R AND D ESTIMATED. NO ESTIMATE FOR 1968.



CHART III

### GROWTH OF CANADIAN INDUSTRIAL RESEARCH AND DEVELOPMENT YEARS ENDED MAR. 31, 1958-70



## Section 2.—Scientific Research Expenditures of and Activities in Federal Government Organizations

Research activities in the various Federal Government departments and agencies have expanded rapidly, at first because of the need for speeding up the production of raw materials, which were long the basis of Canada's export trade, and later because of increasing interest in the processing of raw materials, the necessity of meeting the needs of national defence and the developing consideration for many human and resource requirements.

In Subsection 1 of this Section, which gives statistics of all Federal Government expenditures on scientific research, the departments and agencies conducting such research are listed in Table 3, p. 440. Subsections 2 to 8 review the research activities of the National Research Council, Atomic Energy of Canada Limited, the Department of Energy, Mines and Resources, the Department of Communications, the Department of Industry, Trade and Commerce, the Ministry of Transport, and the Atmospheric Environment Service of the Department of the Environment. The scientific activities of other sectors of the latter Department are covered in subject chapters as follows: the Marine Sciences Branch, the Inland Waters Branch and the Canadian Wildlife Service in Chapter X, and the Canadian Forestry Service and the Fisheries Research Board in Chapter XIII. Research activities of other federal organizations are also included along with related data in the subject chapters as follows: the scientific work of the Department of National Health and Welfare and the Medical Research Council in Chapter VI; of the Canada Department of Agriculture in Chapter XI; of the Canadian Grain Commission in Chapter XX; and of the Defence Research Board in Chapter XXV.

**Subsection 1.—Expenditures of the Federal Government on Science**

Information on the expenditures of the Federal Government on science is secured by annual surveys carried out by Statistics Canada. Each survey covers the actual costs of scientific programs during the preceding fiscal year and estimated expenditures for the following two years. The data presented in this Subsection cover activities in the engineering, physical and life sciences; an experimental survey recently completed on research in the social sciences will form the basis for the annual collection of data in that field in future.

For survey purposes, "scientific activities" consist of research and development (R&D), scientific data collection, scientific information, testing and standardization, feasibility studies, and scientific scholarship programs. R&D accounts for about 77 p.c. of the current expenditures and half of the funds expended for related scientific activities are for scientific data collection. Data are also collected on capital expenditures for scientific activities and on personnel engaged in such activities. It should be noted that the figures given here have been revised to exclude indirect costs which formerly were included in current intramural expenditures.

Total federal expenditures on science continued to increase in the period after 1968-69 but at a lower rate than previously. From 1963-64 to 1968-69, the average annual rate of increase was 15 p.c.; since 1968-69 it has averaged about 7 p.c. In 1970-71, current expenditures on R&D and on related scientific activities increased 13.5 p.c. and 4.6 p.c., respectively, over those in 1969-70 but there was a decrease of 7.6 p.c. in capital expenditures in the same comparison, which was accounted for mainly by lower capital outlay on prototype nuclear power plants.

Table 2 shows federal scientific expenditures classified by type of activity and by major department or agency for the years ended Mar. 31, 1969 to 1972. Table 3 places the amounts expended in 1969-70 and 1970-71 by the major federal departments and agencies in three categories—current R&D, other scientific activity, and capital expenditure. The Department of the Environment, officially created in 1971 to take over the responsibilities of the former Department of Fisheries and Forestry and elements of the Departments of Energy, Mines and Resources, Indian Affairs and Northern Development, Transport, and National Health and Welfare, is now the largest federal spender on science, accounting in 1970-71 for 20.6 p.c. of the total funds applied and over one third of the funds for current related scientific activities. The National Research Council is second, accounting for almost 18 p.c. of the total funds applied and 21 p.c. of the funds for research and experimental development in 1970-71; it provides more than 48 p.c. of the Federal Government's direct support for university research.

Of the current R&D expenditure, about 30 p.c. is industry-oriented; research in the field of natural resources accounts for about 25 p.c.; and free, unoriented, basic research (mainly in universities), health research, and defence research each accounts for 12 p.c.

Since 1963-64, when 68 p.c. of the R&D supported by the Federal Government was performed within its own establishments, the funds provided for outside research have increased steadily. They amounted to about 48 p.c. of the current expenditures in 1969-70 and are expected to reach 51 p.c. by 1971-72. In the latter year, it is estimated that 26 p.c. of the federal R&D funds will go to the industrial sector and 22 p.c. to the university and non-profit sector.

An estimated full-time equivalent of 23,237 persons was engaged in scientific activities in 1970. Of these, 6,320, or 27 p.c., were in the scientific and professional category; 45 p.c. of the permanent full-time scientists and engineers had doctoral degrees, 23 p.c. master's degrees and 30 p.c. bachelor's degrees.

## 2.—Summary Statistics of Federal Government Expenditures on Science, Years Ended Mar. 31, 1969-72

Activity and Department or Agency	1968-69 <sup>a</sup>	1969-70 <sup>a</sup>	1970-71 <sup>a</sup>	1971-72 <sup>a</sup>
	\$'000,000	\$'000,000	\$'000,000	\$'000,000
<b>Scientific Activity -</b>				
Research and development.....	393.7	421.6	478.6	510.6
Scientific data collection.....	51.3	69.2	75.7	82.6
Scientific information.....	22.7	28.8	29.6	33.3
Testing and standardization.....	25.5	27.0	24.6	27.0
Feasibility studies.....	5.4	4.2	3.5	5.6
Scholarship programs.....	12.4	13.3	13.5	13.9
Capital expenditures.....	110.5	91.5	84.7	80.1
<b>Totals, Scientific Activities.....</b>	<b>621.6</b>	<b>653.6</b>	<b>710.1</b>	<b>753.1</b>
<b>Department or Agency—</b>				
Agriculture.....	54.3	51.9	57.0	55.9
Atomic Energy of Canada Limited.....	81.0	75.1	72.3	68.0
Energy, Mines and Resources.....	69.6	38.0	52.9	51.2
Environment.....	49.6 <sup>1</sup>	134.5 <sup>2</sup>	146.9	152.2
Industry, Trade and Commerce.....	47.0	54.1	70.0	87.3
National Defence.....	81.4	76.3	74.6	78.8
National Research Council.....	118.8	124.3	127.3	134.0
Other departments and agencies.....	119.8	99.4	109.1	125.7

<sup>1</sup> Expenditures of the Department of Fisheries and Forestry which in 1971 became the nucleus of the Department of the Environment. <sup>2</sup> Adjusted to compare with 1970-71, during which year the Department was officially created.

## 3.—Federal Government Expenditures on Science, by Department or Agency, Years Ended Mar. 31, 1970 and 1971

Department or Agency	1969-70				1970-71			
	Current Expenditures on Research and Development	Current Expenditures on Related Scientific Activities	Capital Expenditures	Total Funds Applied	Current Expenditures on Research and Development	Current Expenditures on Related Scientific Activities	Capital Expenditures	Total Funds Applied
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000
Agriculture.....	44.8	1.8	5.3	51.9	49.5	1.9	5.6	57.0
Atomic Energy of Canada Limited.....	47.0	2.6	25.5	75.1	51.9	2.5	17.9	72.3
Communications.....	9.4	0.3	2.1	11.8	11.8	0.3	1.9	14.1
Energy, Mines and Resources.....	14.6	20.3	3.2	38.0	27.7	22.6	2.7	52.9
Environment.....	52.8	53.9	27.8	134.5	58.0	56.9	32.1	147.0
Industry, Trade and Commerce.....	54.0	0.1	—	54.1	69.7	0.3	—	70.0
Medical Research Council.....	29.6	1.7	—	31.3	32.7	1.7	—	34.4
National Defence.....	46.5	22.1	7.6	76.3	49.2	19.4	6.0	74.6
National Health and Welfare.....	10.1	1.0	11.1	22.1	9.9	1.3	9.7	20.8
National Research Council.....	101.4	18.4	4.4	124.3	103.1	19.5	4.6	127.3
Others.....	11.4	18.3	4.5	34.2	15.1	20.5	4.1	39.7
<b>Totals, All Departments and Agencies</b>	<b>421.6</b>	<b>140.5</b>	<b>91.5</b>	<b>653.6</b>	<b>478.6</b>	<b>146.9</b>	<b>84.7</b>	<b>710.1</b>



**Subsection 2.—The National Research Council of Canada\***

Organized research in Canada on a national basis dates from 1916 when the Federal Government established the National Research Council. Through the years, changes have taken place in organization and functions as the Council's activities have increased. Today, most of its 10 divisions are located on a 400-acre site just east of Ottawa on the Montreal Road. A Prairie Regional Laboratory is located on the campus of the University of Saskatchewan in Saskatoon and an Atlantic Regional Laboratory on the campus of Dalhousie University in Halifax. Of the Council's 1970-71 appropriation of \$132,000,000, about \$71,000,000 was used for scholarships and grants, \$47,000,000 for the operation of the laboratories and \$6,800,000 for the Industrial Research Assistance Program (see p. 450). In 1971 it had a staff of some 2,800 of whom about 500 held the doctorate degree and about 30 associate committees; in the year ended Mar. 31, 1971, it supported some 4,600 university scientists and awarded 2,900 scholarships, bursaries and post-doctorate fellowships.

**NRC Organization.**—The National Research Council Act (RSC 1970, c. N-14) assigns to the Council but does not limit it to the following functions: (1) utilization of Canada's natural resources; (2) utilization of technical methods and processes used in Canadian industry; (3) maintenance and improvement of the primary physical standards of measurement for Canada; (4) standardization of the quality of material used in public works and of scientific and technical apparatus used in Canadian industry and government; (5) the fostering and carrying out of scientific and industrial research through operation of research laboratories, financial assistance for research activities in Canadian universities, financial assistance and promotion of research in industry, and operation of the National Science Library and the Technical Information Services.

The Council consists of the President, the Vice-President (Administration), two Vice-Presidents (Scientific) and not more than 17 other members appointed by the Governor in Council. The Council is a body corporate and is required to meet at least three times a year. It is responsible to a designated Minister of the Crown, who is a member of the Committee of the Privy Council on Scientific and Industrial Research. Except for the four permanent officers, Council members are appointed for a term of three years and serve without salary. They are drawn from the senior staffs of universities, industry and labour, in an attempt to achieve a broad base of advice as to both scientific discipline and regional representation.

The President, who is the chief executive officer, is assisted by a number of Vice-Presidents and a Délégué Général. The Délégué Général, assisted by a small group of scientists, engineers and economists, is in charge of the formulation of long-range policies and plans, both for the research activities of NRC laboratories and for the support and encouragement of research in universities and in industry; for analyses of existing and alternative NRC projects and programs, taking into account both the scientific and economic aspects; and, in general, facilitating the task of identifying NRC priorities in terms of national needs.

One Vice-President (Scientific) is responsible for industrial research assistance and promotion, and another for the Council's awards program for support of university research. The laboratories and a number of administrative services of the Council come under the jurisdiction of a Vice-President (Laboratories).

Since Apr. 1, 1970, federal research in astronomy has been consolidated under the National Research Council, which is now responsible for the operation of the Dominion Astrophysical Observatory, Victoria, B.C., the Dominion Radio Astrophysical Observatory, Penticton, B.C., the Time Service of Canada, the solar and meteor programs of the Dominion Observatory in Ottawa, and the Meteorite Observation and Recovery Project; the latter is a network of photographic stations with headquarters in Saskatoon, Sask.

\* Prepared (August 1971) by the Information Services, National Research Council, Ottawa. The historical development of the Council is outlined in the 1969 Year Book, pp. 388-389.

The Federal Government has designated the National Research Council as the co-ordinating body for the further development of a national scientific and technical information system (STI), under the general direction of the National Librarian. The integrated national system, encompassing the natural sciences and engineering, will be decentralized and based on the existing resources and systems in industry, the universities and government, all linked together.

**NRC Research Activity.**—The NRC laboratories carry out long-term, applied and specific project research work, most of it industrially oriented although some programs are directed toward important national and regional problems and toward more basic and exploratory back-up research. Quite a number of research projects are carried out on behalf of other government departments and agencies and a considerable amount of staff time is given to consulting on technical problems. In addition, some research projects are undertaken to solve a particular problem, or because of their potential for basically new technology. When successful, the desired end result is the transfer of the new technology to productive channels in Canadian industry. New industries based on NRC-developed technology are beginning to be established, some located in large industrial centres and some in the Ottawa-Hull metropolitan area where they can maintain close contact with NRC laboratories and take advantage of the new technology generated by the laboratories of the Defence Research Board and Atomic Energy of Canada Limited, and of the substantial research activities of several industrial firms in the area.

The research activities of the *Division of Biology* are carried out by eight groups of scientists in the three main areas of environmental, food and radiation biology. In addition the biomathematics group studies problems of interest to cell biologists and provides assistance on statistical problems to the whole Division. The radiobiology group of DRB's Defence Research Establishment in Ottawa is closely integrated with the NRC Radiation Biology groups. Experimental animal facilities available to all Ottawa laboratories of NRC have been centralized in the Division.

The *Biochemistry Laboratory* is composed of NRC scientists who have a common interest in the study of biological processes at the molecular level including biochemists, organic chemists, physical chemists and physicists. Thus, the Biochemistry Laboratory takes advantage of the unique ability of the Council laboratories to form interdisciplinary groups when desirable and necessary.

To encourage this interdisciplinary approach the Laboratory is not organized formally into sections. Instead, individuals work within one or more main lines of research as collaborations develop on the basis of common interests. The objective is to make significant contributions to the understanding of biological processes and the unifying theme is the relationship between structure and biological activity or function.

During the past year, significant advances have been made in several lines of research. These include: (1) the production and isolation of proteolytic enzymes from bacteria and determination of their amino-acid sequences, specificities and reaction mechanisms; (2) the isolation and characterization of polysaccharide antigens from yeasts, fungi and bacteria; and (3) the application of nuclear magnetic resonance, electron spin resonance and optical rotatory dispersion to study conformations of nucleic acids and model membrane systems.

The work of the *Division of Building Research* continues to reflect its triple role as an information, advisory and research agency serving the construction industry of Canada. About 5,000 inquiries were answered during the past year from the Building Research Centre in Ottawa and from the regional offices of the Division at Vancouver, Saskatoon, Toronto and Halifax. Some 900,000 copies of publications of all kinds were distributed on request, more than half of them accounted for by the monthly *Canadian Building Digest*, which is widely used in the teaching of building science and technology as well as by the industry generally.

The growth of the advisory role of the Division is evidenced by the number of committee memberships of all kinds held by the Division, which now totals 348. The 1970

National Building Code represented a very substantial increase in this kind of activity for the officers who served as technical advisers to the various revision committees. This was in addition to the continuing work of the Codes Secretariat. Also important was the assistance given through committee service to the building standards work of such bodies as the Canadian Standards Association, the Canadian Government Specifications Board, and the American Society for Testing and Materials.

There has been a marked increase in the number of visitors coming for discussion of developments and trends in building, due in part to generally greater interest in industrialization, which is seen by many as a way of improving the industry and of reducing construction costs. The Division continues to provide opportunities for discussion, at the design stage of building, of the principles arising out of the steadily developing building science. Opportunities for communication of the results of research done in Canada and elsewhere are provided by the Building Science Seminars presented each year in Calgary and in Ottawa, the subjects of the most recent ones being air conditioning and durability of materials.

The research work feeds all other activities of the Division. Work on high buildings is continued through projects on wind loads, seismic response of structures and air movement in buildings; the latter has assumed unusual importance because of its close relation to smoke movement. Special studies with the computer were carried out for various operational configurations of typical high buildings, as a contribution to the 1970 National Building Code.

The Sections of the Division are arranged in four groups—two on Building Practice and Codes and Standards, recognizing special areas of responsibility, and two Laboratory Sections. The recently equipped Environmental Laboratory is a substantial addition to the Division's facilities and to its capability of evaluating building components and systems on a performance basis.

The work of the *Division of Chemistry* covers a broad spectrum ranging from relatively short-term programs aimed at practical application to the natural resource and chemical industries, to long-term fundamental investigations in selected areas of scientific and technological importance. The permanent staff of scientists and technicians is supplemented by young post-doctorate fellows from Canada and abroad on temporary appointments. Active fields of research are analytical chemistry, chemical engineering, colloids, high polymers, high pressure physical chemistry, hydrocarbons, kinetics, photochemistry and catalysis, metallurgical chemistry, metallic corrosion and oxidation, textile chemistry, chemical spectroscopy, molecular structures, organic spectrochemistry, organic synthesis, thermochemistry, and theoretical studies. The following research programs typify the work of the Division.

Studies on membrane phenomena have suggested a number of applications for the concentration and separation of constituents of solutions by osmotic action. Considerable potential exists for reverse osmosis as a large-scale engineering process for saline water conversion and other concentration processes. Applications to problems of environmental quality appear to be of particular importance at the present time.

The spontaneous slow oxidation of organic molecules is often a limiting factor in the useful life of fuels, lubricants, foods and textiles. A long-term program of research on autoxidation has made substantial contributions to knowledge of the mechanisms by which these changes take place, and of how they can be accelerated or retarded. The application of this work to the ageing process in animal life has aroused considerable interest from the medical profession.

The work of a laboratory devoted to a special branch of synthetic organic chemistry resulted some years ago in the establishment of an industry that has found a steady market for organic compounds specifically labelled with stable isotopes.

Another laboratory has played a leading part in developing computerized methods for the automation of infrared spectroscopy. A file of some 30 computer programs put into modular form and distributed as a series of bulletins, card decks and tapes has attracted wide



interest from industrial and university laboratories. This laboratory has also been intimately involved, in association with the CODATA Task Group for Computer Use, with the more general problems of computer-based techniques for the evaluation, storage and retrieval of numerical scientific data of various kinds. This work will have important applications in the pharmaceutical and petroleum industries.

The work in the *Division of Physics* is divided into three general areas: the improvement of Canada's social and economic climate by providing new data, concepts and designs to industry and government; the maintenance of physical standards of the highest quality; and the study of particular areas of physics in which the Division has a special competence. These activities are intermixed in sections devoted to acoustics, cosmic rays and high energy physics, electricity, heat, mechanics, metal physics optics, photogrammetry, plasma physics, spectroscopy, time, X-ray and nuclear radiation.

The Division maintains standards equal to the best anywhere in the world in the fields of mass, length, time, electricity, temperature radiation, photometry, colorimetry and acoustics. Besides providing these standards to Canadian industry and governments, the Division has a continuing program of comparisons of Canadian standards with those maintained by the other leading industrial nations, thereby ensuring the acceptability of Canadian measurements in international trade. A third aspect of the standards work in the Division is a program to improve the primary standards so that future measurements will be more convenient and more precise.

During the past year, advances have been made in spectrophotometric capabilities of the laboratory and considerable effort has been devoted to establishing the new international temperature scale. In the optics laboratory, a stabilized laser has been produced which will allow the precision of the standard of length to be improved by a factor of more than a hundred. Research is in progress to establish a standard of voltage by means of the Josephson effect, to improve the time standard by the construction of a more precise cesium clock and to extend the precise measurements of radiation up to the 30 Mev range.

Broad research programs are carried on in the fields of acoustics, cosmic rays and high energy physics, metal physics, nuclear physics, photogrammetry, plasma physics, and molecular spectroscopy. As examples of specific projects either completed or in progress, the metal physics group has developed computer programs which give a good representation of the mechanical properties of simple metals; the photogrammetry section, in co-operation with the Quebec government, has carried out a mapping project in the Hull area to determine the properties of orthophoto maps in large-scale urban mapping; and in the plasma group the properties of laser induced plasmas have been studied on a picosecond time scale.

Many of the studies undertaken in the Division are related to immediate industrial requirements. In the acoustics section, studies of the noise generated by traffic, by snowmobiles and by chain saws have resulted in the preparation of acceptable standards and suggested modifications in the various machines. An instrument that can be towed behind a ship to record temperature and salinity of the water at various depths has been constructed and is being produced commercially. A measuring device particularly useful for photogrammetry, designed by the photogrammetry group, is also being sold commercially and work is progressing on other map-making instruments that appear to have commercial potential. These and other commercial developments have their origin in laboratories devoted to fundamental studies and to standards rather than in laboratories devoted specifically to industrial development work.

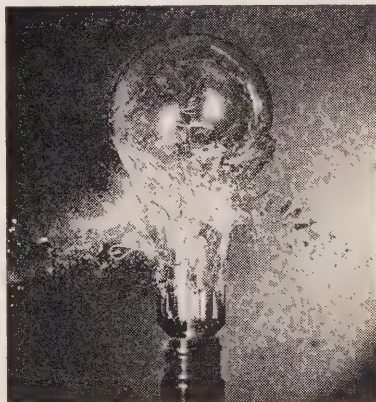
About half of the work in the *Division of Mechanical Engineering* in 1970 was concerned with transportation technology, 29 p.c. with manufacturing technology, 11 p.c. with standards and standardization, 7 p.c. with computer application developments, 4 p.c. with medical and surgical instrumentation, and 3 p.c. with engineering and biological control systems.



*NRC's use of high-speed photography is a tremendous aid to industry and research in improving both product and efficiency. Expanding real time with high-speed movies or freezing very short intervals of time permits minute analysis of many events and phenomena not otherwise possible.*

↑ *Evaluating NRC's notched-post system of wire cable retaining barriers, now performing successfully in actual situations.*

*A pellet shatters a light bulb and almost instantaneously breaks an electrical circuit actuating the camera's electronic flash, stopping action at one millionth of a second.* →



Transportation work is about equally divided among land, sea and air developments. Land transportation activity is mainly related to the welding of rails for the Canadian railways, to apparatus for preventing the malfunctioning of railway switches in winter, to gas turbines and compressors for gas pipelines and to the examination of various aspects of container shipping, whether by rail or road. A substantial body of research is directed to special-purpose ships and marine air-cushion vehicles and a large project is under way relating to navigational improvements of the St. Lawrence River in summer and winter.

Air transportation activities relate to the development and certification of new engines. In particular, research and novel investigations have been concentrated on engines appropriate to VTOL aircraft. With a view to the eventual marketing of this aircraft, liaison has been established with potential manufacturers and interested Canadian air carriers as well

as with government departments and agencies at the federal, provincial and municipal levels.

Recent work in the manufacturing field is concerned with the application of two-phase heat transfer pipes to the maintenance of permafrost in areas of arctic construction, and with the de-icing of navigational buoys in waters off the Canadian East Coast. Another project, reaching the exploitation stage by a Canadian company, is the use of high-pressure water jets for cutting various kinds of materials.

Newsletters publicizing manufacturing processes not yet in general use in Canada are being widely distributed and have given rise to a most enthusiastic response through Canadian industry. Examples of the new technologies include the generation by grinding of precision case-hardened gear teeth, the generation of complicated shapes in a variety of materials by electrochemical machining, and the application of numerical control for much greater productivity of machine tools on single articles or small lots. In a number of instances, these technologies have proved of valuable consequence to Canadian industry.

In addition to the calibration of instruments, lubricating oils, fuels and various apparatus for Canadian industry, the various laboratories of the Division have been involved in the certification of the airworthiness of helicopters and various gas turbine engines in conditions of snow and sleet.

Because of the expense involved in the construction of prototype machinery and in arranging complicated experiments even with conventional machinery, the application of computers to the simulation of projected machinery performance has become very important. Typical examples of Division work pertain to the investigation of the parallel operation of compressors on gas pipelines; the transients resulting from changes in operation and the corresponding controls; systems analysis of certain control components and the general control features of a new nuclear power station, and of a hydro-electric power station (in collaboration with the University of the West Indies); dynamics of high-speed railway container cars; and new designs of reciprocating engines.

Work in progress in the development of new instrumentation for medical and surgical purposes ranges from the design of prototype instruments for extremely difficult operations on the spinal cord to final arrangements for production and marketing of a suturing instrument for blood vessels; the first activity is a collaborative one with the Montreal Neurological Institute and Queen's University, and the second is related to the licensing of a Montreal manufacturing firm.

Work continues on the industrial application of control theory—mechanical, electronic and fluidic, and the application of control system technique to animate beings. In particular, a considerable body of work has been accomplished in relation to the effects of microwaves on birds, and work relating to the possible supply of electrical control impulses to the muscular system of paralyzed people has begun. Conversely, progressively more detailed investigations are being made of biological control systems as possible models for better and more reliable engineering systems.

The *National Aeronautical Establishment* conducts aeronautical research to meet the needs of military and civil aviation, working in co-operation with the Canadian aircraft industry; it also carries out its own research program. Its studies therefore centre around problems of aerodynamics, aircraft structures and materials, and flight mechanics. It has the only development wind tunnel facilities in Canada and is thus equipped to handle most of the industrial or military aircraft developments of the foreseeable future. Aerodynamics research from low speeds up to about 17 times the speed of sound is carried out in the wind tunnels; considerable attention is being given at present to low-speed problems of vertical and short take-off aircraft. Other studies include work on the aerodynamic characteristics of high-thrust propellers, on wings with submerged fans and on wings immersed in powerful slip-streams. The research on structures and materials involves investigation of aircraft accidents, the theory of structures, fatigue and fracture, flight load statistics and aircraft hydraulics. The flight mechanics program covers research



on flight safety and flying stability and control, the development of a crash position indicator for locating crashed aircraft, atmospheric physics, and anti-submarine magnetometry.

A growing and highly diversified program of assistance to smaller industries is developing, the work relating mainly to product development, improvement or testing. Concerning aircraft utilization, efforts have been directed toward those areas of national activity where aerial methods might offer economies in cost or improvements in effectiveness, such as agricultural applications, forest fire fighting, aerial logging, high sensitivity magnetic surveys, precipitation physics, and studies of atmospheric turbulence.

The work of the *Radio and Electrical Engineering Division* includes engineering projects of interest to Canadian industry and fundamental research in electrical science. The engineering program in the high-voltage field includes studies of corona loss and radio interference from direct-current transmission lines, and the development of current comparators for very accurate measurement of current and voltage ratios. The high-frequency laboratory is responsible for maintaining the national standards of RF power, voltage, impedance and attenuation and has recently participated in an international intercomparison of these standards. Assistance is given to industry in the design, production and evaluation of new equipment, and in the solution of such problems as the design of antennas and of microwave film and paper dryers and moisture sensors. Many devices have been patented including a radar altimeter, now in commercial production, which is used in taking inventory of forests by photogrammetry.

In the field of bio-medical engineering, new techniques in electrocardiography and echoencephalography have been developed, a study of cardiac stimulation thresholds is under way and instruments that will contribute toward the rehabilitation of handicapped persons have been produced. The Division has co-operated with members of the medical profession in the establishment of safety standards in the use of electronic equipment in hospitals for treatment and diagnosis.

Much of the research effort in the computer laboratories of the Division is concentrated on the problem of communication between man and computer. Computer graphics techniques have been adapted to provide a versatile tool for the film animator and for the composer of music. Problems arising in computer-aided learning systems are being investigated, and a touch-sensitive screen has been designed and patented, an extremely flexible

*A blind NRC scientist has, in the past 20 years, produced close to 100 instruments and devices for increasing the mobility and job skills of the sightless, one of which is a light detector that enables a blind switchboard operator to locate the flashing light that indicates an incoming telephone call.*



input device that permits an untrained person to communicate effectively with a computer. Special data recording and analysing systems have been developed to suit widely varying scientific programs.

Fundamental research is carried out in solid state physics, wave propagation, quantum electronics, and the behaviour of particles at ultrahigh vacuum.

Research in astronomy and related fields is conducted by the Astrophysics Branch at several locations in Canada. Optical studies of stars and other celestial bodies are undertaken at the Dominion Astrophysical Observatory at Victoria, B.C. The major instruments of this observatory are reflecting telescopes of 72-inch and 48-inch aperture equipped with powerful spectrographs. The Branch operates two radio astronomical observatories. The Algonquin Radio Observatory in Ontario is equipped with a variety of instruments, the major one being a powerful 150-foot (46-meter) parabolic telescope. Facilities at the Dominion Radio Astrophysical Observatory in British Columbia include telescopes for low-frequency observations and for studies of neutral hydrogen in interstellar space.

Observations of radio solar emissions are made at both the Algonquin Radio Observatory and the Dominion Radio Astrophysical Observatory, and optical studies are carried out at the Ottawa River Solar Observatory near Ottawa. Other fields of research include the study of meteors and meteoric phenomena by optical and radar methods and from rockets and study of the physics of the upper atmosphere and the aurora.

The function of the *Space Research Facilities Branch* is to develop and provide facilities to meet the needs of the upper atmosphere and space research programs of Canadian scientists in universities and government agencies. At present, its work is restricted primarily to the use of sounding rockets. The major launching site is the Churchill Research Range, a Canadian facility operated for the benefit of both Canadian and foreign scientists. It has facilities for the launching of most types of sounding rockets and balloons carrying scientific experiments to investigate the earth's upper atmosphere. Associated ground-based instruments are available to study the aurora borealis by photographic and spectrophotometric methods. There is also, for occasional use, a small launching facility at Resolute in the Northwest Territories, and a temporary facility was established at East Quoddy, N.S., for use in studies of the solar eclipses of 1970 and 1972. The Branch also operates the Great Whale Geophysical Station at Poste-de-la-Baleine in Quebec, which records auroral phenomena for Canadian and United States scientists.

In the implementation of the sounding rocket program, the Branch is responsible for providing the vehicles and incorporating the scientific experiments into suitable payloads with associated telemetry and other devices; this work is carried out mainly by industrial contracts. The work of the Branch also includes the reduction of flight data to provide vehicle trajectory and attitude information to experimenters, and the provision, from the telemetered information recorded on magnetic tape, of data required by individual scientists in any form desired.

The *Atlantic Regional Laboratory* at Halifax in Nova Scotia is engaged in practical and fundamental studies in chemistry and biology related to the resources and industries of the Atlantic Provinces. Such studies include investigations of: the biochemistry and physiology of marine algae, fungi, bacteria, lichens, mosses and higher plants; the chemistry of naturally occurring organic compounds; and the physical chemistry of inorganic compounds at high temperatures. A major objective is to develop varieties of seaweeds with enhanced commercial value and to investigate the growth and cultivation of seaweeds and other marine algae. Surveys are being made to reveal new sources of seaweeds. An applied project on toxic microfungi in pastures is being carried out in collaboration with the Canada Department of Agriculture at Nappan, N.S. Fundamental studies on inorganic reactions at high temperatures may be of value to the steel and glass-making industries, and research in organic reactions, which includes work on methods of synthesis, may also eventually have industrial value. Some of the work in biochemistry and physiology is related to medicinally important compounds such as antibiotics and drugs that affect mental processes.

One of the aims of the *Prairie Regional Laboratory* at Saskatoon in Saskatchewan is to develop wider uses for crops grown on the Prairies. The Laboratory program is carried out by five sections: physiology and biochemistry of fungi, physiology and biochemistry of bacteria, plant biochemistry, chemistry of natural products, and engineering and process development. Research is therefore carried out on the properties and reactions of plant components, and on the biological, chemical and engineering processes for turning them into other compounds. The development of oil-seed crops as alternatives to seed crops has received considerable attention.

For some time, the Laboratory has studied major plant constituents such as carbohydrates, protein, starch, lignin and fibres. An example of this work is the definition of the chemical structure of several polysaccharides found in cereal grains and important in baking, milling and fermentation technology. Attention is also being given to minor plant constituents, such as phenols, flavonoids and terpenes, which are known to have fungicidal and germicidal properties and facilities have been set up for the systematic study of extractives from local plants and shrubs.

Developments from the Laboratory attracting commercial interest are: the production of feed supplements by direct use of micro-organisms, and specific essential amino acids such as lysine; poly-hydroxy alcohols such as glycerol and arabitol; hydroxy fatty acids; and the possibilities of producing specific glyceride types using the enzyme systems of micro-organisms. The Laboratory works in co-operation with the Canada Department of Agriculture to help maintain Canada's position as the world's leading exporter of rapeseed, used to produce cooking oils, dressings and oil for use in margarine and shortening. A group working in the field of mycology is concerned with the production of new chemicals, antibiotics, alkaloids and amino acids.

**University Research Support.**—From its inception, the National Research Council has encouraged and supported research in Canadian universities. A system of postgraduate scholarships and post-doctorate fellowships gives assistance to students, Canadians and landed immigrants who have shown promise of research ability. The awards are: Post-doctorate Fellowships; Postgraduate Scholarships; Bursaries; 1967 Science Scholarships; Post Industrial Experience Research (PIER) Fellowships; and Postgraduate Scholarships in Science Librarianship and Documentation. Awards are for advanced studies and/or research in science and engineering and are competitive, with academic excellence being the main criterion in the selection of successful candidates. In addition, the Council in 1970 introduced an Industrial Post-doctorate Fellowship program for the support of research in Canadian industry which is intended to encourage highly qualified science and engineering students to seek careers in industry.

Post-doctorate Fellowships and Industrial Post-doctorate Fellowships are awarded to candidates who have recently completed or who are about to complete their requirements for a doctorate degree. The purpose of the two programs is to enable those who have received a doctorate degree to undertake, prior to becoming permanently employed, post-doctoral research for up to two years after receiving their degree. Post-doctorate Fellowships are tenable in Canadian universities and in universities and other institutions abroad; Industrial Post-doctorate Fellowships are tenable in industrial organizations in Canada. Postgraduate Scholarships are awarded for tenure in Canada and a successful candidate may elect to carry out his program at the Canadian university of his choice; however, where facilities for a Ph.D. program are limited or lacking in Canada, the candidate may receive special permission to hold his scholarships at a university abroad.

Canadian universities receive an annual quota of bursaries from NRC and are responsible for the selection of students for these awards. They are not transferable and are tenable only at the university that nominated the student for the award.

The 1967 Science Scholarships, introduced to celebrate the centennial of Canadian Confederation and the 50th anniversary of NRC, are intended to encourage young men and women of outstanding intellectual promise to pursue postgraduate studies and research



leading to doctorate degrees, as well as to stimulate exchanges of students between different cultural and geographical regions in Canada. Scholars must select for graduate studies a university other than the one from which their first degree was obtained.

Post Industrial Experience Research (PIER) Fellowships, introduced in 1966, provide an opportunity for persons with industrial experience to gain additional research experience and training. A limited number are made available each year to candidates who have had not less than five years of industrial experience.

Postgraduate Scholarships in Science Librarianship and Documentation, introduced in 1967, are intended to encourage graduates with a degree in science or engineering to become science librarians, documentalists or science information specialists in an effort to meet the demand by universities, research laboratories, industrial firms and related organizations for qualified persons in this field.

**Assistance to Industry.**—The application of science to industry has been a major concern of NRC since its founding. There is a constant flow of personnel and information between NRC laboratories and those of industry, and roughly 70 p.c. of the Council's own effort involves applied research intended for industrial use. Contract research on specific projects and a variety of testing and standardization work are undertaken. Inventions from NRC laboratories are carried through the patent stage, then made available for manufacture through Canadian Patents and Development Limited, a subsidiary of NRC.

In an effort to improve the co-ordination of the various agencies of government concerned with administration of industrial assistance programs, a study group has been formed of the major participants, including the Department of Industry, Trade and Commerce, the Defence Research Board, the Department of Finance, the Treasury Board and NRC. This group is active in its efforts to devise improved incentive programs. Staff members of NRC have organized meetings with representatives of Canadian research management, and from these there is emerging a much clearer picture of the problems of industrial research and development in Canada.

During nine years of operation, some \$90,000,000 has been invested in the Industrial Research Assistance Program (IRAP) administered by NRC, with industry contributing approximately 58 p.c. of the total cost. The number of projects funded during the year ended Mar. 31, 1971 was 204, tenable in 136 companies. For the first time since the inception of the program in 1962, and as a result of continuing encouragement to companies in these provinces, projects are being supported in Nova Scotia and Saskatchewan. The highest level of research activity continues to be in the chemical, electrical, pharmaceutical and paper and allied products industries although, in 1969-70, an increase was apparent in the electronics and instrumentation areas.

With the time interval between research discoveries and the appearance of an improved product in the marketplace measured in decades, it is too early to forecast the effect of the program on the Canadian economy. The rate of growth of the IRAP in the early stages was governed by a shortage of senior scientists and research engineers, time needed to build laboratories and the share of company funds available to match government assistance. Recent reports from companies participating in the program reveal a considerable change with a substantial increase in staff, in the purchase of sophisticated research instruments and in capital expenditures which have more than doubled since the Program started.

The number of small companies applying for IRAP assistance is growing rapidly and there are a number of case histories showing that small companies can do highly successful research and development with the appropriate incentives. A close working relationship has been effected between the industry group, some 40 university professors in a consulting capacity, and approximately 100 scientists as advisers or liaison officers from government laboratories. This new link between industry, university and government is improving communication and providing a feedback of industrial activities and requirements into the universities and government laboratories.

**Technical Information Service.**—NRC has a Technical Information Service (TIS) which was established in 1945 to help, on request, small secondary manufacturing industries to keep pace with advances in research and technology. TIS today maintains direct contact with industry through a system of field offices and provides, without cost, information and advice on technological matters.

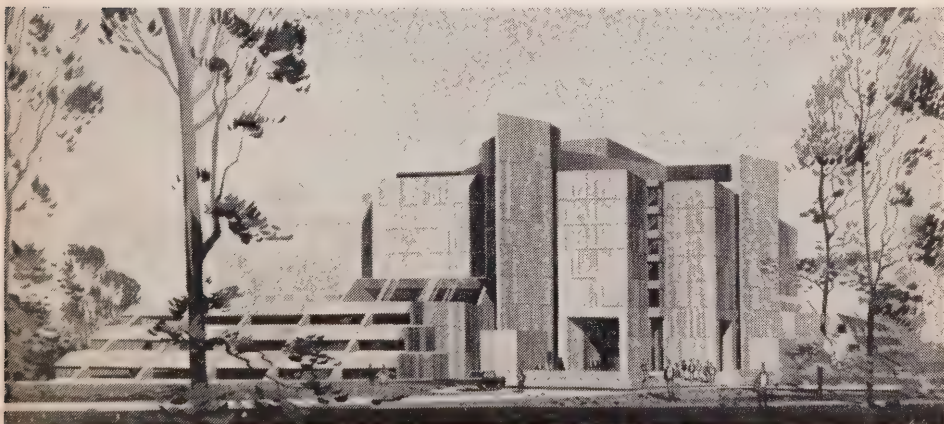
The Industrial Engineering Section has nine industrial engineers in the field and three in Ottawa, who are applying their engineering knowledge to help small companies on a do-it-yourself basis in resolving their operating problems. This is done through information, guidance and assistance in the analysis of work situations, improvements in production processes and facilities, and implementation of systems by which management can operate and control production processes for optimum results.

The Technical Developments Section further facilitates the flow of technical information to Canadian industry. An experimental program is being carried out with the co-operation of some 3,000 companies each of which has provided TIS with a listing of its areas of industrial interest; these are matched by computer with the information items held by the Technical Developments Section and selected lists are issued to each company.

Engineers in the TIS field offices visit or contact thousands of small companies in every part of Canada and answer written or verbal inquiries numbering well over 10,000 a year. Problems requiring information in greater depth are referred to the Ottawa staff who draw upon experience with previous inquiries, the National Science Library, experts in government departments and industry, and foreign information services for suitable information which is forwarded to the enquirer, sometimes accompanied by suggested solutions to their problems.

**The National Science Library.**—Plans for developing a central scientific library were proposed as early as 1924 by the Honorary Advisory Council for Scientific and Industrial Research, established in 1916, now the National Research Council of Canada. The Library grew slowly until 1928 when temporary research laboratories were established near the present Sussex Drive building which was opened in 1932. Since then it has been developed to parallel the growth and expansion of the laboratories and the national interests and activities of the Council with the result that in 1953, under an agreement with the more

*A new \$12,844,000 building to house the National Science Library is under construction at the Montreal Road site of the National Research Council and will be completed by 1973. It will have stack space for 2,000,000 volumes and its facilities will permit the employment of the latest techniques for the storing, retrieving and disseminating of scientific information.*



recently established National Library, the National Research Council Library formally assumed responsibility for national library services in the fields of science and technology, a responsibility confirmed by Act of Parliament in 1966. In 1967, the President of the Association of Canadian Medical Colleges recommended to the Government that responsibility for national services in the medical and health sciences be assigned to the National Science Library.

The National Science Library now serves as the focal point of a national scientific and technical information network. Through co-operative measures with both national and international information agencies, its activities are designed to provide the Canadian scientific and industrial communities with direct and immediate access to resources and services not available locally. Increasing use is being made of computer and related electronic data processing equipment to organize, retrieve and expedite the dissemination of information. One such service is a selective dissemination of information (SDI) system available on a regular (weekly or bi-weekly) subscription basis to Canadian scientists and engineers. The Library's collection, which is doubling in size every ten years, comprised approximately 850,000 volumes at the end of March 1971. Most of this material, including journals and other serials, books, pamphlets and technical and research reports (many in microform), is housed in the main Library with smaller and more specialized collections in eight branch libraries.

The resources of the Library are made available by means of an extensive inter-library loan and photocopying service. This service also identifies references to obscure publications and, if necessary, attempts to locate holdings elsewhere in Canada or abroad. For purposes of current awareness, the Library issues twice a month its *Recent Additions to the Library*. The *Union List of Scientific Serials in Canadian Libraries*, prepared by the Library with the co-operation of other libraries in Canada, records the title, holdings and location of approximately 40,000 scientific and technical journals received by over 200 libraries in Canada. The data for this publication is stored on magnetic tape and updated regularly for computer print-out as new editions are required.

Librarians trained in science or engineering and subject specialists provide a reference and research service to meet Canadian needs for information. Many inquiries require carrying out a literature search and preparing a list of relevant references. Other requests for information may be answered from the staff's own knowledge or with advice from the scientific and technical personnel of the Council and other government departments and agencies.

The *Canadian Index of Scientific Translations*, a card index to the location in Canada or elsewhere of translations of articles written in foreign languages, is maintained by the Library. Translations of scientific articles prepared by the Library's Translations Section are listed and made available in Canada and abroad. A complete English translation of the Russian journal *Problemy Severa (Problems of the North)* is also prepared by this Section. The National Science Library publishes the *Directory of Canadian Scientific and Technical Periodicals*, *Conference Proceedings in the Health Sciences*, *Scientific and Technical Societies of Canada*, *Scientific Policy, Research and Development in Canada* (a bibliography), and other publications related to its own activities.

The National Research Council, under the general direction of the National Librarian and in concert with existing information organizations, is in course of developing a national scientific and technical information system encompassing the natural sciences and engineering and has appointed an advisory board of directors with responsibility for formulating general policies and guidance toward their implementation.

**Associate Committees.**—NRC's associate committees provide an important instrument for studying, co-ordinating and promoting research on problems of national significance. The members of these committees are experts in the different aspects and disciplines related to the problem and are drawn from university, industry and government laboratories. The committee studying a particular problem collects and collates the



necessary information, delineates research problems, co-ordinates research and may initiate new research necessary to the solution of the problems. Each committee has defined objectives and when these are accomplished the committee is disbanded. Currently, more than 30 associate committees are operating in such diverse fields as aerodynamics, bird hazards to aircraft, protective coatings research, plasma physics, and soil and snow mechanics. Some associate committees also function as national committees for an international scientific union.

An Associate Committee on Scientific Criteria for Environmental Quality has been established by the Council to collate and publish an integrated set of scientific requirements on which an evaluation of the quality of the environment can be based. The criteria will be designed to assist those at the federal, provincial and municipal levels who have responsibility for the formulation and enforcement of environmental quality standards.

**International Affiliations.**—NRC maintains a scientific liaison office in London, England, for the exchange of scientific information and also has a scientific exchange agreement with the Soviet Academy of Sciences that provides for visits of scientists ranging in

*Knowledge of Canada's arctic tundra is essential to the understanding and maintenance of its environmental quality. To obtain this knowledge, Canada has launched a comprehensive ecological study on Devon Island, 1,800 miles north of Winnipeg. The research is being conducted by scientists from five Canadian universities under the auspices of the Canadian Committee for the International Biological Program.*



duration from three weeks to nine months; the Council has accepted responsibility for exchange of Canadian scientists with France under the Cultural Agreement between the Governments of Canada and France, and an agreement on scientific exchanges has been concluded with Brazil.

In addition, NRC administers a number of international programs for exchanges of scientists and scientific information. It also supports Canadian membership in organizations such as the International Scientific Unions, helps to finance scientific congresses in Canada, and aids Canada's participation in world scientific projects.

### Subsection 3.—Atomic Energy of Canada Limited\*

A number of large nuclear electricity generating stations are being brought into operation in Canada, Pakistan, and India, all stemming from the "heavy-water moderated" type of nuclear reactor introduced and developed by Atomic Energy of Canada Limited (AECL). A brief review of them and other large scale engineering activities will serve to show how closely the research and development work of AECL is linked to activities that form an important part of the national economy.

Heavy water (deuterium oxide) had been chosen for slowing or "moderating" the neutrons from nuclear fission to maintain the fission chain reaction in the experimental NRX reactor at Chalk River. The virtue of heavy water in permitting high power density had been demonstrated in the operation of NRX from 1947-52 when a thermal power of 30,000 kilowatts was attained using less than 10 tons of natural uranium fuel. The power was raised to 40,000 kilowatts in 1954. The 200,000-kilowatt experimental NRU reactor designed and constructed in 1950-57 uses heavy water for both coolant and moderator and its fuel is changed with the reactor at power without shutting down. In the NRX and NRU reactors, the temperature of the coolant was too low to generate steam for power, but in 1951 it became clear that a heavy-water power reactor could be designed that would have a very low fuelling cost compared with coal. The first design employed a pressure vessel to contain the hot coolant, but in 1956 the promising performance of zirconium alloys allowed the preliminary design of the power reactors now coming into large-scale use. This design, given the name CANDU (CANada-Deuterium-Uranium), retains the desired fuelling economy and makes it the only type yet in operation anywhere in the world that can claim the designation of "near-breeder" and "advanced converter" with an expectation that the type will remain economically competitive for the foreseeable future. Moreover, it could meet the power needs of the whole world for many hundreds, and possibly, thousands of years if operated with fuel recycling on enriched uranium and thorium as fuel. All the reactors so far built have been designed to operate on natural uranium fuel, but fuel recycling is possible.

By virtue of its success with nuclear generating stations, Canada was able to make a strong presentation at the Fourth United Nations International Conference on the Peaceful Uses of Atomic Energy in September 1971. During the month of July, 8 p.c. of the electricity supplied by the Ontario Hydro system was generated by nuclear energy from the 200,000-kilowatt Douglas Point station and the first 540,000-kilowatt unit at the Pickering station near Toronto. Moreover, the Gentilly 250,000-kilowatt station being commissioned for Hydro Quebec had reached 45 p.c. of its designed output. The second 540,000-kilowatt unit at Pickering also started up during the Conference. All four reactors are of the CANDU type.

The heavy-water moderator is held at low pressure in a tank threaded by separate channels containing the nuclear fuel in the form of bundles of small, short rods. The heat is transferred from the fuel by a heat transport fluid or caloporteur which in the Ontario Hydro reactors is heavy water under pressure, and in the Hydro Quebec reactor is ordinary or "light" water that boils. A third caloporteur, a specially developed type of hydrocarbon oil, or organic liquid, has given outstanding performance at higher temperatures (e.g.,

\*Prepared by Dr. W. B. Lewis, Senior Vice-President, Atomic Energy of Canada Limited, Chalk River, Ont.

400°C or 750°F) in an experimental CANDU reactor developing 40,000 thermal kilowatts; this, the WR-1 reactor, is located at AECL's Whiteshell Nuclear Research Establishment in Manitoba. This organic liquid, in conjunction with thorium fuel and enriched uranium, promises to allow a reactor to operate at more than three times the power density of existing installations and so reduce its capital cost. Moreover, the operating costs are expected to be much lower, for, after five years operation of WR-1, the caloporteur circulating pumps and piping show negligible radiation levels and allow easy maintenance.

In addition, 1971 has seen the successful start-up of KANUPP, a generating station using a CANDU reactor of 125,000 kilowatts rating designed and built by the Canadian General Electric Company in Pakistan near Karachi. Four more 200,000-kilowatt CANDU reactors are under construction by the Department of Atomic Energy in India.

Operating difficulties initially experienced with the Douglas Point generating station have been largely overcome and fuel has been changed routinely with the reactor at power since March 1970.

The success of these operating reactors has not lessened the demand on AECL for supporting work of many kinds. In particular, a shortage of heavy water for new reactors is foreseen resulting from the failure of a production plant commissioned from private industry. AECL has now been assigned responsibility for rebuilding and commissioning this plant. Meanwhile AECL is building a larger plant at Bruce, close to Douglas Point in Ontario.

The large-scale engineering work undertaken by AECL has also included the construction of a high-voltage DC transmission line to bring power from the Nelson River in northern Manitoba to Winnipeg. This line has been successfully built but manufacturing problems have delayed much of the power conversion equipment.

AECL has continued to expand its production of radioactive cobalt-60, used in radiation teletherapy units for cancer treatment throughout the world and also for industrial plants for the sterilization of packaged medical supplies and similar purposes.

The very small low-energy nuclear reactor—SLOWPOKE—brought into operation at Chalk River in 1970, has been moved to the University of Toronto for use principally in the neutron activation analysis of materials at low levels of concentration, such as mercury in foods. A second SLOWPOKE with some refinements has been brought into operation at AECL Commercial Products in Ottawa.

The aluminum vessel forming the core of the NRX reactor at Chalk River since 1954 had corroded in some areas and was replaced at the end of 1970 in an operation that was most satisfactorily completed in 130 days. Preparations have been made for replacing the reactor vessel in the larger NRU reactor at Chalk River that has operated since 1957.

Over the past few years there has been growing public concern about pollution of the environment. For many years AECL has had an environmental research branch at Chalk River, and has been able to study the problems of radioactive waste management in a secluded area. This area is on bedrock that forms a basin with only one water outlet, a small creek which is monitored to assure that the outflow meets the radiation levels permissible for drinking water. Should such levels be approached, it is possible to raise the weir level to increase the dilution or to process the whole stream. Glass blocks containing high levels of strontium-90 and caesium-137 were buried there in 1959 and the levels of activity in the surrounding ground water have been followed and found to be satisfactorily low. Such a method of managing wastes appears preferable to any disposal in an area at a distance from an operating plant. Radiation levels are far below those where biological effects can be expected, but by sensitive detectors it is possible to follow any movement of radioactivity within the management area. It seems likely that the CANDU reactors will be easily managed without imposing any burden on the environment. In order to obtain independent monitoring, AECL many years ago passed over to the Department of National Health and Welfare responsibility for the radioactive monitoring of public water supplies, discharges into rivers, and radioactivity from the atmosphere that may enter milk supplies by settling on vegetation.



Fundamental research has always been, and must remain, the basis of AECL's development. AECL's primary research tools are the reactors. The three large reactors, NRX, NRU and WR-1, are major research installations providing facilities in their cores for irradiation of materials over extended periods. Special isolated fuel channels, or loops, are provided for the in-reactor testing of different types of fuel and coolant systems—this testing being fundamental to further development of the Canadian power reactor program. Additionally, horizontal holes through the reactor shielding allow intense neutron beams to be directed to various test rigs. One such rig (in NRU) includes a fast beam "chopper" allowing time-of-flight studies on neutron interactions with matter. In-reactor loops, at CRNL and WNRE are complemented by out-of-reactor test rigs which, apart from the radiation field, simulate reactor fuel channel conditions.

Commissioning of a new out-of-reactor research facility designed specifically for investigation of the BLW and the Advanced BLW reactor concepts was completed in 1971. This test rig uses Freon as a coolant, and is designed to simulate a variety of power reactor conditions. With three full-size test sections, the loop will provide realistic test facilities for any CANDU type of fuel configuration at present envisaged. The use of Freon (with its low vapour pressure) as a modelling fluid to simulate water provides a considerable saving in both construction and power costs.

A further major research tool at Chalk River is the 10 megavolt "MP" Tandem Van de Graaff Accelerator. Among its many uses are precise studies of the structure and excited states of heavy atomic nuclei. Data acquisition and analysis equipment associated with the accelerator is on-line to powerful data processing systems. The accelerator is undergoing modifications to uprate the machine to 13 megavolts which will provide higher particle energies and considerably increase its research potential.

In the field of technical information the introduction of mechanized systems is progressing. The main CRNL library—Canada's national repository of nuclear literature—has successfully introduced computer control of book circulation and periodical renewal and budgeting. Experimental operation of a computerized current-awareness service has started—initially serving AECL staff but later to be extended on a national basis. Additional technical information activities included the co-ordination of the 17 Canadian papers presented at the Fourth United Nations Conference on the Peaceful Uses of Atomic Energy, and preparation of supplementary material for this conference.

As previously mentioned, Whiteshell Nuclear Research Establishment is specifically oriented toward investigation of materials for advanced reactors. The establishment's research reactor, the organic-cooled WR-1, is undergoing modification to replace its stainless-steel fuel channels with channels of Ozhennite—0.5. The comparative "transparency" to neutrons of zirconium will permit a reduction in fuel enrichment and a 50-p.c. increase in neutron flux. Additionally, the reactor core is being increased in size from 37 fuel sites to 54, improving the flexibility and capacity of the reactor to deal with experimental programs. Two in-reactor organic loops have been commissioned in WR-1, both of which, at 4.5 megawatts each, are of higher power than the existing water-cooled loop. A fourth loop is under construction.

Out-of-reactor loop work at WNRE has been devoted to investigation of liquid metal coolants, which offer higher temperatures than the organic liquid. Three lead-bismuth loops (one at 630°C, the others at 800°C) have provided much information on liquid metal heat-transport systems, and a fourth facility using molten lithium is being commissioned.

A terminal unit and data-link at Whiteshell, installed in 1971, now provide the Establishment with direct access to CRNL's powerful CDC 6600 computer system. A similar link serves Power Projects.

Other projects at Whiteshell include work on radiation field measurement techniques in confined spaces (such as inside reactor cores), investigation into fundamental biological mechanisms and the effect of radiation (especially low-dose exposure) on them, and materials research—particularly oriented toward fibre-reinforced ceramics.

Radioisotopes made in the Chalk River reactors are marketed through Commercial Products for use in medical applications for diagnosis, therapy and research. Radioactive tracers are also used significantly in agricultural research by a number of groups throughout Canada.

The Commercial Products group, well established as a world leader in the design of cancer therapy equipment, introduced a new cobalt-60 therapy machine, known as the Brachytron. This instrument can remotely locate up to three small cobalt-60 sources in body cavities for internal radiation therapy and represents a great advance over the existing treatment techniques using manually positioned external sources.

Under a contract with the Task Force on Oil Pollution, measurements of the trace elements in oil samples from known sources are being made. It is hoped that this could lead to the setting up of a file of distinctive features, enabling identification of oil-pollution sources. Commercial Products has also introduced a trace-element analysis service for government and industry. Employing neutron-activation analysis techniques, the service can identify elements and their quantities in submitted samples. This service has special application in the determination, for example, of various contaminants in food sources and human tissue.

The transportation of radioactive materials is subject to specific regulations, and many developments have been made over the years to ensure that these can be met.

The advent of the Nuclear Weapons Non-Proliferation Treaty and the safeguards against fissile material diversion, inspected by the International Atomic Energy Agency, has led to special developments of instruments and procedures.

Despite the increasing load of development work, a high quality of active research has been maintained, as has collaboration with other laboratories in universities and research institutes in Canada and abroad.

**Relations with Other Organizations.**—A strong feature of the Canadian organization for atomic energy is that the regulatory body—the Atomic Energy Control Board (AECB)—is separate from the chief executive agency (AECL). This, however, does not preclude close working relations. The President of AECL is, *ex officio*, a member of the Control Board and AECL staff are members of several AECB advisory committees.

AECL shares with the Department of Industry, Trade and Commerce a desire to increase the participation of Canadian industry in the developing nuclear market and AECL's many overseas interests involve relationships with the Department of External Affairs and the Export Development Corporation.

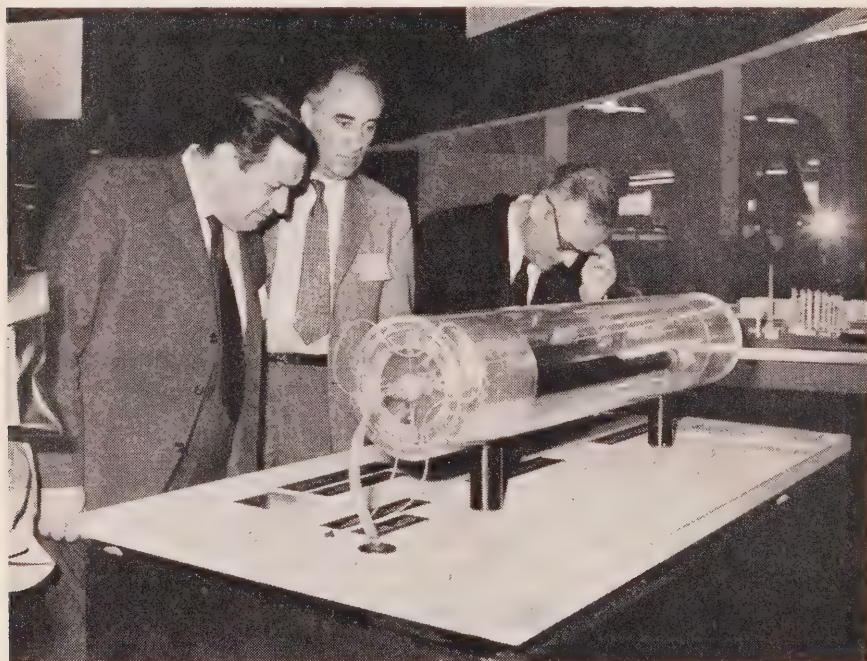
While AECL does not make grants to universities, research contracts are negotiated in many cases where the university has the necessary facilities and expertise. Some 20 Canadian universities undertake such work for AECL. However, the close relations that have been built up with universities are mainly the result of personal contacts. During the summer, many graduates and undergraduates of Canadian universities work at AECL establishments. A number of professors also use AECL facilities for research projects, a service which, due to the demand, is now available throughout the year under the aegis (at CRNL) of the Experiments Advisory Committee, a joint universities and CRNL committee. It is also noteworthy that some 60 former AECL staff now hold staff positions at Canadian universities.

AECL has encouraged and fostered Canadian industrial participation in many aspects of its program, by the award of research and development contracts, and the employment of professional and consulting services. Development contracts have contributed materially in qualifying Canadian companies to supply services, materials and equipment to the exacting standards required in the nuclear industry. As a result, two Canadian companies are now established as qualified and competitive suppliers of nuclear fuels. In other cases, qualification results from trial orders, supported by the provision of a prototype or samples, specifications and assistance from the laboratories and technical staff.

**International Relations.**—International relations have always been an important feature of Canada's nuclear program. Many irradiations in the NRX, NRU and WR-1 reactors have been made for several countries at their expense or on a shared-cost basis, notably for the United States, the United Kingdom and Euratom. In exchange for information on the Canadian power reactor program, the United States carried out an agreed research program in support of AECL's work. Technical meetings and the exchange of reports have maintained contact between the United Kingdom steam generating heavy-water power-reactor project and the Canadian program. Informal exchanges of visits and information with France and Italy have taken place for many years. Italian relations have been strengthened and put on a more formal basis recently with the maintenance at CRNL of a full-time Italian liaison office. Close relationships also exist between AECL and the Department of Atomic Energy (DAE) in India, the first Canadian-designed research reactor to be built outside Canada (CIRUS) being built near Bombay in a co-operative program, partly supported by the Colombo Plan. AECL also designed India's first heavy-water nuclear power station, the Rajasthan Atomic Power Project (RAPP), now under construction in a co-operative program. This will consist of two 200-megawatt reactors, each very similar to Canada's Douglas Point station.

Additionally, formal arrangements for information exchange have been established with Australia, the Federal Republic of Germany, Japan, Romania, Spain, Sweden, Switzerland and the Soviet Union.

AECL is represented on numerous international organizations and committees. Its Senior Vice-President, Science, represents Canada on the United Nations Scientific Advisory Committee to the Secretary General, and is also a member of the International



Delegates to the UN Fourth International Conference on Peaceful Uses of Atomic Energy view a device developed within a joint Canada-United States program called TRUST. The aim of the program is to design devices to support safeguards inspectors working under the terms of the Treaty on the Non-proliferation of Nuclear Weapons.



Atomic Energy Agency (IAEA) Scientific Advisory Committee. Canada is a member of the Board of Governors of the IAEA and participates in advisory panels, conferences and symposia arranged by this organization, and also plays an important part in the development of the International Nuclear Information System (INIS), which is providing a world-wide nuclear information service. Canada is a major participant in the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) as well as other *ad hoc* United Nations Committees. AECL also contributes to the activities of the International Commission for Radiological Protection, the International Nuclear Data Committee, the European Nuclear Energy Agency and the International Council of Scientific Unions.

The Fourth United Nations Conference on the Peaceful Uses of Atomic Energy, mentioned on p. 454, was attended by 4,000 delegates and observers from 79 countries, and has profound significance. Firstly, it has served to emphasize the extremely rapid rate of progress being made in nuclear science—it is, after all, less than 40 years since Rutherford and his research team were investigating the structure of the atom and now nuclear power reactors with outputs of the order of hundreds of millions of watts are operating. Even more significantly, the tremendous potential of nuclear power has proved to be a major force in promoting true internationalism—with no other activity has the world seen such a high degree of international co-operation. The necessity for such co-operation is becoming increasingly obvious—the prospect looms of a world population of 15,000,000,000. Applications of radiation and radioisotopes to agriculture and medicine are beginning to provide some of the answers that will help the world support its millions and provide them with the fundamental amenities, but the major problem remains one of power supply. It has been estimated that a 15,000,000,000 population would require 300,000 gigawatts (1 gigawatt =  $10^9$  watts) of energy. Canada's presentation at the Geneva Conference indicated that the CANDU reactor system has reached the stage from which it could make a major contribution. Not only is the system advanced in development, but resources of uranium and thorium are more than sufficient for the foreseeable future.

#### CHRONOLOGY OF NUCLEAR POWER IN CANADA

- 1942-43 Research scientists from Cavendish Laboratories, England, arrived in Montreal to continue work on atomic bomb project.
- 1944 Under auspices of National Research Council (NRC), work started on Chalk River Nuclear Laboratories (CRNL).
- 1945 First working reactor, ZEEP (Zero Energy Experimental Pile), outside of the United States attained criticality at CRNL.
- 1947 NRX (National Research Experimental) reactor came into operation at CRNL. Initial power 38 megawatts(thermal).
- 1952 Formation of Atomic Energy of Canada Limited as a Crown corporation. Commercial Products transferred from Eldorado Corporation to AECL.
- 1957 NRU (National Research Universal) reactor came into operation. Design power 200 megawatts(th).
- 1962 NPD (Nuclear Power Demonstration) generating station started operations at Rolphpton, Ont. Power 22 megawatts(electrical).
- 1964 WR-1 reactor came into operation at Whiteshell Nuclear Research Establishment, Man., using mixture of organic fluids as coolant—Canada's first organic cooled reactor. Initial power 40 megawatts(thermal).
- 1965 First Canadian full-scale prototype power reactor started up at Douglas Point. Heavy-water moderated, heavy-water cooled reactor, with output of 208 megawatts (electrical).
- 1970 Gentilly boiling light-water cooled power reactor attained criticality near Trois-Rivières, Que. Power output to be 250 megawatts (electrical).
- 1971 Pickering I came into operation. Power output 540 megawatts (electrical). Pickering II attains criticality.

#### Subsection 4.—Scientific Activities of the Department of Energy, Mines and Resources\*

The objective of the Department of Energy, Mines and Resources is to ensure the full and effective use of Canada's energy and mineral resources for the benefit of all Canadians. Its mandate encompasses the development, co-ordination and implementation of federal policy governing energy and mineral resources and the carrying out of research to obtain the scientific, technical and economic information basic to the making of such policy. The Department comprises three sectors—Energy Development, Mineral Development and Science and Technology.

**Energy Development.**—The tremendous growth in energy consumption in the world's industrialized nations and the increasing awareness that Canada's energy resources constitute a precious and not inexhaustible patrimony whose use must be carefully planned and regulated have given new weight and responsibility to the Department's Energy Development Sector. Its experts deal with such questions as the reserves in fossil fuels, uranium and water power, availability of energy for export, regional disparities in energy development, transportation systems, conservation of energy and the environment on land and in the offshore, technological questions, and many more. On the basis of such studies and the resultant recommendations, the Federal Government develops its policies in the energy field.

**Mineral Development.**—The Mineral Resources Branch identifies and evaluates trends affecting Canada's mineral industry by studying the entire spectrum of mineral industry activities from geologist to user—exploration and development, processing, transportation, marketing and consumption. The information provides a basis for decisions to be taken within the Department and contributes to the development of resource policies. It carries out the administration of the Emergency Gold Mining Assistance Act under the direction of the Assistant Deputy Minister of Mineral Development; advises and participates in the programs of several other federal departments and task forces; represents the Department on several national and international committees, and co-ordinates the Department's foreign aid activities with the Canadian International Development Agency.

**Science and Technology.**—The Science and Technology Sector carries out a broad range of scientific research pertaining to the earth sciences—geodesy, geology, geophysics, mineralogy, metallurgy and geography. It is responsible for acquiring a knowledge of the physical characteristics of Canada's land masses, its energy and mineral resource potential, and the basic data essential for engineering and resource development purposes. Through its surveys, maps and reports, it furnishes the scientific data about the earth's crust necessary for the efficient development, use and conservation of the country's natural resources.

The Sector comprises, in addition to the Surveys and Mapping Branch whose functions are described at pp. 42-43, the Geological Survey of Canada, the Mines Branch, the Earth Physics Branch, the Polar Continental Shelf Project and the Resource Satellites and Remote Airborne Sensing Project.

The *Geological Survey of Canada* provides a systematic knowledge of the geology, mineral and fuel resources of the country and assists in the effective use and conservation of resources, and in the management and preservation of man's environment throughout Canada. Continuing research projects, especially those involving a major component of laboratory work, have given rise to the establishment of teams with unique capabilities in such areas as mass-spectroscopy and isotope dating, including: the development of instrumentation and continuing refinement of techniques in support of field research; geochemistry, especially projects in which new field techniques have been developed; biogeochemistry, involving geology, geochemistry and botany; clay mineralogy; and various

\* Prepared (August 1971) by the Public Relations and Information Services, Department of Energy, Mines and Resources, Ottawa.



*The Mines Branch of the Department of Energy, Mines and Resources, in this group of buildings, pursues its function as a major contributor to the national goal of ensuring effective use of mineral and energy resources. The complex is made up of mining research, fuels research and metal reduction and energy centres.*



*A combustion scientist measuring the reduction of air pollution emissions during research on improved heat and mineral processes being conducted in the fuels research centre.*





geophysical projects, especially in the development of remote sensing devices. Research tools and systems that have been developed include: high resolution aeromagnetic survey systems; ground gamma-ray spectrometry; development of airborne gamma-ray spectrometry for the search for radioactive minerals; practical methods of field geochemistry for prospecting; field methods for detection of Radon-222 in streams and sediments to outline uranium-bearing areas; and a method of tracing mineral trains in glacial deposits back to source as an aid to prospecting. In addition, the Geological Survey has led the world in rapid reconnaissance geological mapping using helicopters and other aircraft, especially in the field techniques developed and applied to the mapping of the arctic regions.

The *Mines Branch* is an interdisciplinary applied science institution engaged in research in non-renewable mineral resources and metals. Its facilities include a Mining Research Centre which carries out research, such as stability of underground and open-pit mines, methods of rock breakage, problems of environmental engineering and methods of obtaining maximum performance in mining operations. The Branch's general objective of its mission is to provide leadership in ensuring a sound scientific base for new technology and in stimulating the application of advanced technology to the extraction, processing and use of minerals and fuels in Canada and in the improvement of metal products. Specifically, it aims to improve the efficiency of the mining, processing and use of mineral resources and of metals and alloys; to improve the recovery of low-grade mineral resources and to minimize waste; to recognize problems in industry and undertake research, or give advice, on methods of solving these problems; to predict shortages and substitutions from technological market trends and to undertake research on mineral resources of potential value. It plans its activities in terms of its mission-oriented research, conducting basic research only when purely scientific data are required for technological purposes. As a corollary, the Branch has had to build up some facilities to support its specialized activities, such as facilities for the carbonization of coal, the study of corrosion, and for pilot-scale mineral processing and foundry investigations.

The *Earth Physics Branch* investigates the magnetic, gravity and seismic characteristics of the earth as a whole and of the Canadian land mass in particular. It utilizes the results of its research and of the research done elsewhere to obtain new and more detailed knowledge of the Canadian land mass, leading to improved magnetic and gravity charts, improved knowledge of earthquake hazards and improved detection of underground nuclear explosions. Some major programs are: studies on the properties and characteristics of the earth's crust and deep interior; study of the magnetic field in Canada and its variations, both to aid navigation and to investigate the ancient history of the earth; and study of variations in the gravitational field in Canada, relating this to the shape of the earth and to problems in accurate surveying. The Branch is concerned with the recovery of meteorites and investigation of meteorite craters. Branch scientists conducted the world's first systematic search for ancient meteorite craters using air photographs, maps and other information. Sixteen impact sites have been identified in Canada and a greater number of possible sites are under investigation. These investigations have been distinguished by the broad approach taken to the problems of crater identification and analysis; gravity, magnetic, seismic, resistivity, structural, topographic and petrographic methods have all been employed; even more important has been the pioneering use of continuous diamond drilling to investigate the deep zones of a number of craters.

The knowledge so gained has application to the nature, origin and abundance of meteorites and to the history of the more stable parts of the earth's crust. The analysis of field and laboratory observations, coupled with pertinent experiments, has led to a better understanding of the dynamic properties of the earth's crust and the nature of its response to high-energy shock pulses. These results have application to the field of rock mechanics and to the contemplated use of nuclear explosions for large excavations and are of significance to the mining and oil and gas industries because large impact structures have sometimes formed or controlled the distribution of deposits of economic importance.

The *Polar Continental Shelf Project* has been undertaken to increase the scientific and technical knowledge about the arctic regions of Canada. It provides the means for inte-

grating or co-ordinating arctic investigations and, by developing specialized knowledge and experience in technology, logistics, communication and human problems and making such facilities and knowledge available to responsible organizations, it promotes effective scientific and technical work in the arctic regions. The project works directly with other branches of the Department in planning and carrying out an integrated program of arctic research and survey; it conducts independent investigations to obtain information of basic importance about arctic phenomena, resources or conditions; and it co-operates with other government departments and agencies and with universities to provide expertise and facilities for arctic studies. Major programs, most of which are undertaken in co-operation with other departmental branches or agencies, include: aeromagnetic surveys of arctic regions and preparation of aeromagnetic maps; geodetic and topographic surveys of arctic regions to improve surveying techniques and knowledge of glaciology; investigation of marine geology of the arctic continental shelf and continental slope; investigation of terrestrial geology of arctic regions; hydrographic survey of the arctic continental shelf and slope; and oceanographic survey of arctic waters near the continent.

The *Resource Satellites and Remote Airborne Sensing Project* is a national research program, the co-ordination and funding of which is a responsibility of the Department of Energy, Mines and Resources. An Interdepartmental Committee, which was set up in 1969 and which includes representatives from all Federal Government agencies interested in the data to be produced by remote sensing, directs the development of Canada's program of remote sensing technology. Its functions are: to set up and monitor specialized technical working and planning groups with broad representation as appropriate for an on-going Canadian resource satellite and remote sensing program; to organize and cause to be organized, periodic national symposia related to this subject; to prepare program forecasts and estimates for such programs when developed; to plan and recommend an organization to carry out the Canadian resource satellite and remote airborne sensing program, and to perform necessary management functions until such time as a management agency is created.

#### Subsection 5.—Scientific Activities of the Department of Communications\*

The Communications Research Centre (CRC) of the Department of Communications, with a staff of about 500, carries out research and development in terrestrial and space communications systems, radio propagation, domestic and research satellites, electronics and space mechanics and information sciences related to communications systems. The main CRC site is at Shirley Bay, Ont., 15 miles west of the centre of Ottawa. CRC also operates a number of experimental sites, most of them in the Ottawa area and at remote northern locations, such as Resolute Bay. The Centre was a laboratory of the Defence Research Board specializing in defence telecommunications before the Department of Communications was formed in 1969.

The research program of CRC is organized into four main fields—communications research, information sciences, the radio environment, and spacecraft technology. The research resources are employed either in direct support of departmental programs, in support of other government agencies, or in the development of knowledge and national capabilities in communications processes and technology. Research is conducted on designated projects for other departments on a cost-recovery basis, including a continued program of research on behalf of the Defence Research Board. Close association with industry and with universities is developed through a wide variety of contractual arrangements and informal liaison.

Work in the field of communications system research constitutes a major element of the CRC research program in support of the Department's mission to foster, develop and introduce new communications systems, facilities and resources for Canada in the domestic and international spheres. In addition to internal research and development in this area, CRC provides both design authority and project management capability on related con-

\* Prepared by the Information Services Branch, Department of Communications, Ottawa.



tracts with industry. Having in mind the interests of isolated communities located in Canada's northern territories, satellite communications experiments have been defined to test and demonstrate the applications of a high-power satellite-borne transponder working into small low-cost earth terminals. In support of the Armed Forces in this field, investigations have continued into advanced terminal development in the land, air and sea environment and evaluation of system performance at very high latitudes. Radar research and development is directed to both long-term and short-term problems in the military and civil fields.

Within the radio environment, CRC is the Canadian national centre for research on radio propagation across the entire electromagnetic spectrum, including the laser region. The research program concentrates on propagation problems peculiar to Canadian latitudes with a view to applying the results to current and future communications systems. The experiments in the *Alouette/ISIS* satellites, in which the ionosphere is sounded from above and simultaneous measurements are made of closely related magnetospheric phenomena that influence the propagation of radio waves, are part of this program.

*ISIS-II*, the fourth Canadian-built satellite in the international co-operative *ISIS* program, was placed in orbit by a U.S. launch vehicle in the spring of 1971. This satellite was built by Canadian industry with CRC as the design authority, and joined *Alouette-I*, *Alouette-II*, and *ISIS-I* in orbit, each operating under world-wide control from the CRC at Shirley Bay. Together they constitute a continuing series of experiments in orbit for scientific studies in Japan, France, Australia, New Zealand and India, as well as the United Kingdom, the United States and Canada. CRC provides a radio prediction, forecasting and consulting service to Canadian users of radio communications systems.

The spacecraft development work at CRC is backed up by a program of related applied research in space mechanics and electronics, the objective of this supporting work being to provide advanced research, design and testing of complete spacecraft electronic and mechanical systems for these Canadian satellites. This includes theoretical studies of the physical properties of composite materials and the analysis of complex structures and components that comprise the mechanical systems and subsystems of a spacecraft. Research and development is also carried out on basic materials and processes and on spacecraft electronic systems which must be small, lightweight, and at least an order of magnitude more reliable than conventional electronics.

In co-operation with NASA, the Department of Communications is planning to build and launch a Communications Technology Satellite in 1974. The objective of the project is to space-qualify items of advanced design suitable for operating SHF transponders for communications spacecraft. Such designs may be incorporated into future spacecraft to provide domestic community broadcast television, FM broadcast, telephony and data relay transmission coverage in the 1980s, particularly to isolated areas of Canada.

#### **Subsection 6.—Scientific Activities of the Department of Industry, Trade and Commerce\***

The results of research, development and advanced technology are regarded by the Department of Industry, Trade and Commerce as a major resource essential to the achievement of efficient and sustained growth in the production and trade of Canadian goods and services. As tariff barriers are lowered and as natural resources become more easily replaceable and transportable, technological innovations will be a key factor in the economic growth of industrially advanced countries. Emphasis is thus placed on the level, distribution and quality of the national effort directed to the advancement and application of science and technology. A major function of the Department is to promote and assist product and process development and to increase productivity in Canadian industry through the greater use of research and the application of advanced technology. The Department achieves these objectives, mainly, through the use of financial assistance programs.

\* Prepared by the Office of Science and Technology, Department of Industry, Trade and Commerce, Ottawa.

The Industrial Research and Development Incentives Act (IRDA) (RSC 1970, c. I-10) provides a general incentive for scientific research and development. Its objective is to induce Canadian corporations to undertake additional research and development likely to result in economic benefit to Canada through the eventual production of new and improved products and processes for sale in domestic and foreign markets. Any taxable Canadian corporation carrying on business in Canada may apply for a grant which is based on the corporation's expenditures for scientific research and development carried out in Canada. Since the inception of the Program in 1967, some \$75,000,000 have been authorized for payment to Canadian corporations in respect to scientific research and development activities conducted in Canada. Of this amount, \$30,100,000 were authorized for payment during the year ended Mar. 31, 1971.

Financial assistance for selected projects to develop new or improved products and processes which incorporate new technology and which offer good prospects for commercial exploitation in domestic and international markets is provided under the Program for the Advancement of Industrial Technology (PAIT). Applications for PAIT assistance are appraised as to the technical and commercial feasibility of the project, as to the capabilities of the company to carry it out, and as to the potential contribution to the economic growth of Canada. Projects supported under the program include the development of a water bomber aircraft, satellite communications equipment, electromagnetic prospecting equipment, flight and safety devices, advanced machinery and machine tools, wood-harvesting equipment, and data display devices. Since the inception of the program in 1965, over 400 projects involving a PAIT contribution of some \$95,000,000 have been supported.

In order to compete for and participate in the development and production programs of other NATO countries, Canada's defence industry must keep pace with product developments and advances in manufacturing technology dictated by the requirements of modern military equipment. The Defence Industry Productivity Program (DIP) is designed to enhance the technological competence of the Canadian defence industry in its export activities by providing financial assistance to industrial firms for selected projects. Emphasis is placed on those areas of defence technology having civil export sales potential. Assistance may cover the development of products for export purposes; the acquisition of modern machine tools and other advanced manufacturing equipment to meet exacting military standards; and assistance with pre-production expenses to establish manufacturing sources in Canada for export markets.

Projects initiated under the DIP Program have been instrumental in helping industry to develop its skills on a specialized basis in fields of technology that have defence and civil applications and which Canada is favourably situated to exploit. Costs of these projects are shared by the Department and the Canadian firm concerned and, in some instances, by the governments of other NATO countries. Among the projects that have received assistance are communications and aircraft navigation systems, gas turbine engines for aircraft, flight safety and simulation equipment, and information display facilities. Exports of the products of these developments continue to increase, including significant orders for such diverse applications as commercial airlines, public communication networks and television distribution systems. Since the inception of the Program in 1959, more than 480 projects involving a contribution of some \$270,000,000 have been supported.

The Department assists small firms in Canada to keep abreast of technological advances and to maintain a more competitive position in world markets through the establishment of three Programs. As a result of the financial assistance provided by the *Centres for Advanced Technology Program*, instituted in 1968, universities and other organizations are able to establish centres of expertise in fields where industry is unable to conduct the research necessary to develop new areas of technology, or where many industries seem likely to benefit from research into a common technological area. Three centres have been established—the Canadian Institute of Metalworking at McMaster University, the Centre for Powder Metallurgy at the Ontario Research Foundation and the System Building Centre at the University of Toronto. Through the *Industrial Research Institutes Program*, scientific services are available to industrial firms unable to maintain research

facilities and personnel of their own, thus helping to alleviate the shortage of scientific and technical resources that exists in Canadian industry, to foster a closer relationship between universities and improve their understanding of the problems of industry, and to help industry become acquainted with the latest pertinent scientific and technical developments. Institutes have been formed at the University of Windsor, McMaster University, the University of Waterloo, the Nova Scotia Technical College, McGill University, and L'École Polytechnique. Through membership in *Industrial Research Associations*, in which member companies may undertake on a co-operative basis research and development and related scientific activities such as technical information, technical consulting, analysis and testing, etc., small and medium-size companies acquire research and development and other scientific services which they are unable to afford on their own.

The Department is actively engaged in missions to foreign countries, resulting in Science and Technology Agreements and the establishment of Mixed Commissions for the purpose of stimulating exchange of technical information in areas of mutual interest, of encouraging joint research and development projects and promoting industrial development through licensing agreements in specific areas of technology. Agreements have been signed (by mid-1971) with Belgium, the Soviet Union, and the Federal Republic of Germany.

Co-ordination of policies relating to the Government's industrial assistance programs is achieved through the Interdepartmental Committee on Innovation. The Committee's terms of reference include a continuing review of program objectives and policies, studies of the environmental factors affecting the innovation process in Canada and comparison with other countries, studies concerning the relationship between investment in industrial research and development and economic growth, analysis and review of the Government's policies and programs with respect to procurement and the relation of the level of R&D activities in government establishments to that of financial assistance to R&D in industry.

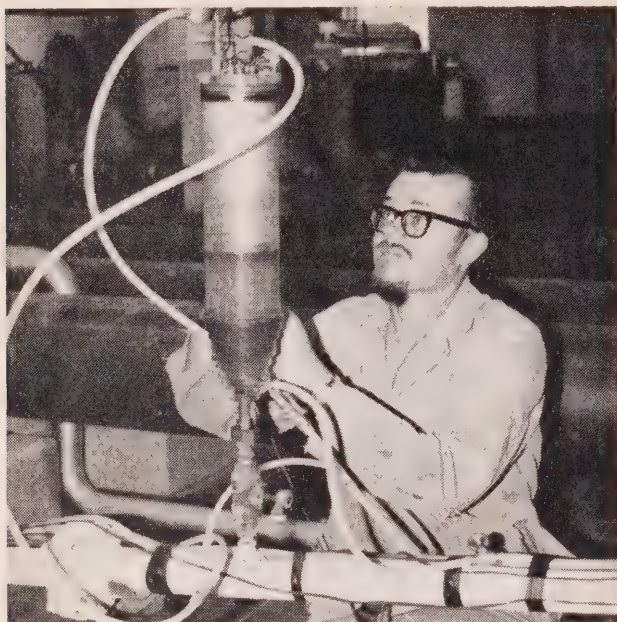
### Subsection 7.—Scientific Activities of the Ministry of Transport\*

A research development unit has been formed recently within the Ministry of Transport. This Transportation Development Agency is one of the prime participants in scientific and industrial research in the field of transportation. Projects under way include:—

- (1) Mackenzie River Basin Study—to identify and evaluate transport requirements and costs of moving people and goods to, from and within the basin area over the next 15 years.
- (2) Capsule Pipeline Experimental Research—to develop capsule pipeline transport technology in Canada and evaluate its economic viability; this project is contracted to the Alberta Research Council.
- (3) Regina Telebus Demonstration—to test a demand-responsive transit system as an alternative to the automobile in low-density areas and the possible application of this technology to other Canadian cities; this project is undertaken in co-operation with local and provincial authorities.
- (4) Research and Development Survey of Canadian Manufacturing—to analyse a survey dealing with the scope and content of research and development in the Canadian transportation manufacturing industry.
- (5) Vacation Travel by Canadians Survey—to provide a description of holidays and vacation trips undertaken in 1970 and look further into vacation travel trends.
- (6) Sonic Boom Research—to evaluate, in co-operation with other federal departments and agencies, alternatives and formulate policy for the handling of supersonic aircraft movements in Canada.
- (7) Port Facilities and Services Pricing—to study the present pricing systems of port facilities and recommendations for revising the pricing structure.
- (8) Montreal Airport Study—to identify air traveller characteristics and mode choice on ground access to the Dorval Airport.
- (9) Slurry Pipeline Experimental Research—to obtain technical information on small-scale and full-scale solids pipelines for the materials most likely to be transported by this method in the future; this project is being conducted by the Saskatchewan Research Council in co-operation with the University of Saskatchewan.

\* Prepared by Information Services, Ministry of Transport, Ottawa.





The Saskatchewan Research Council is working on a slurry pipeline project for the federal Transportation Development Agency. Slurry pipelines are potentially an inexpensive method of moving large quantities of such materials as potash, iron concentrate, coal and sulphur long distances from their sources to ports and industrial centres. This gauge indicates the amount of pressure required at a certain point to counteract the pressure from the slurry.

#### Subsection 8.—Scientific Activities of the Atmospheric Environment Service, Department of the Environment\*

Meteorology, the science of the atmosphere, affects all parts of the economy and all areas of the country. It is basic to resource management in primary endeavours such as agriculture, forestry, mining, fishing, water and air (pollution), as well as to manufacturing, construction, transportation, power, etc., and the advancement of knowledge in this discipline, which ranges from the development of new techniques to improve routine weather forecasts to research of the upper atmosphere, is therefore of great value in almost every area of human activity. One of the characteristics of meteorological research and application is that the information and understanding obtained is seldom very far removed from having economic significance, often of great importance. Almost all research can be readily related to anticipated practical benefits.

Capital, operating and maintenance funds for research and development allotted to the Canadian Meteorological Service (re-named the Atmospheric Environment Service in 1971) for the year ended Mar. 31, 1970, amounted to \$3,000,000. In addition, assistance in the form of grants and contracts in the field of meteorology carried out by Canadian universities amounted to about \$350,000.

*Climatology Activities.*—The Atmospheric Environment Service conducts research on the applications of meteorology and climatology to water resources, agriculture, forestry, transportation, communications, industry, construction, air pollution control and aviation. In the field of hydrometeorology, which involves that portion of the hydrologic cycle which is affected by or which affects the atmosphere, the main processes of interest are precipitation, energy exchange and evaporation. Specialized studies are carried out on storms, the meteorology of lakes and rivers, and the energy balance and water balance of the natural

\* Prepared by the Atmospheric Environment Service, the organization and functions of which are described at pp. 49-53.

environment. Many of these are of a co-operative, inter-disciplinary and inter-agency nature, some in connection with international research programs and others in relation to flood and water supply forecasting.

Climatic research and studies in support of natural resources, arctic exploration and development, industry and commerce are conducted within the Service itself, by the assignment of personnel to other agencies, through co-operative programs, or through contracts; bioclimatological research relating to productivity of forests is carried out co-operatively and in this field a newly designed lysimeter has been constructed for use in studies of evapo-transpiration from crops, the air-earth crop water balance and the evaluation of evaporation instruments; arctic studies are made in support of oil and mineral exploration, the selection of airport, town and mining sites, the design and operation of communication systems, transportation and operations in severe cold weather; topoclimatological studies, using mobile and stationary sensors, are a basis for optimum land use in fruit production and town planning; engineering studies are undertaken in support of the construction industry and analyses are used in the national building code; and an ice accretion climatology is being developed to aid in the design of support towers.

*Atmospheric Research.*—Progress continues in theoretical meteorology by using the basic dynamic and thermodynamic equations in conjunction with great computers. Topics studied include: energetics of atmospheric circulations; modes of development in extra-tropical and tropical cyclones; influence of moisture exchanges on the synoptic circulation; and new physical and mathematical models for studying and forecasting circulation patterns.

Studies of atmospheric processes on a scale from millimetres to about a mile (micro-meteorology) are of importance in such fields as air pollution, agriculture, forestry, urban planning, etc. Study topics include: wind and turbulence in the surface boundary layer; turbulent flux of heat, momentum and particulate matter; variability of momentum flux in the earth's boundary layer; effects of turbulence on coherent and incoherent light propagation in the atmosphere; and temperature and humidity microstructure at a land-lake interface. Major programs are carried out, with the emphasis on air pollution, by plume-rise and diffusion from point sources, the purpose of which is to obtain information concerning the meteorological parameters, on both the synoptic and meso-scales, that are conducive to high pollution potential, and to obtain data that could be incorporated into models for forecasting pollution potential on both a local and synoptic scale.

Studies of atmospheric motions ranging from about one mile horizontally up to about 100 miles (mesometeorology) are of great importance in local weather variability and are of basic importance for air pollution control, etc.

Studies on cloud and precipitation processes in the atmosphere may have very great economic consequences, partly because it may be feasible to modify and to a certain extent control these processes. Experimental seeding of selected hail-producing storms, at the peak of the hail season in Alberta, with airborne silver iodide flares produced encouraging results and local experiments on the dispersal of fog that seriously hampers transportation at airports and inland marine routes were conducted. Further study of previous rainfall modification experiments were re-analysed in attempts to assess the possibility of effective weather control which would be of tremendous economic benefit to forestry, agriculture, hydro-power and certain industries.

Field and laboratory studies continued on means of identifying, locating and tracking lightning-producing storms, the aim being to assist forestry interests to combat forest fires and to assist other agencies where precautionary measures would result in significant savings of life and money.

Work continued on increasing the effectiveness of radar to observe and differentiate storm details. Equipment and techniques were developed to calibrate, record and archive weather radar observations for effective use as a "radar rain gauge".

The study of radiation, both solar and terrestrial, is of fundamental importance in respect to atmospheric energetics and information on radiation is of great value in many

human activities. Research programs include: basic properties of radiation instrumentation, their design and standardization by international intercomparisons; development and use of radiometersondes for measuring radiational variation with height; and use of radiation data for a number of applications including atmospheric dynamics, agriculture, construction, etc.

The atmosphere above 30 km. contains only 1 p.c. of the earth's atmosphere but the nature and extent of the interaction, both physical and dynamical, between this region and the underlying atmosphere require examination. The coupling mechanisms, through circulation and radiative processes, require study both from the viewpoint of downward energy propagation and climatic modification, and upward in relation to radio communication and flight through these regions. Studies include: the measurement of ozone in the atmosphere both from ground-base systems and by Nimbus 4 Ozone Experiment Data Evaluation. Nimbus 4 was successfully launched from Vandenberg Air Force Base on Apr. 18, 1970. The satellite has a near-circular orbit at 1,100 km. above the earth and is close to the local noon/local midnight meridian. By midnight (GMT) on Mar. 31, 1971, the satellite had completed 4,800 earth orbits. Backscattered ultraviolet instrumentation is used in the evaluation. High-level ozone profiles for the region above the main ozone maximum have been evaluated for over 30 orbits.

To establish high-level circulation patterns, radio-active tracers are used. Networks are being developed to observe and study noctilucent cloud and air-glow. Doppler radar techniques are used to measure upper winds in the 80-110 km. level range.

*Forecast Research.*—Research and development to improve and automate the operational weather forecasting system is being intensively pursued. Present computer methods are being extended, based on dynamic and occasionally quasi-empirical techniques. Research on other forecasting operations is also progressing, including systems for forecasting air pollution potential, ice in navigable waters, forest fire hazards, and wind-waves.

*Instrument Research and Development.*—The Atmospheric Environment Service uses an extensive variety of instruments to make observations on an operational basis at 240 Surface Synoptic Stations, 32 manned Aeronautical Stations, eight Automatic Reporting Stations, 36 Upper Air Stations and 2,180 Climatological Stations. In addition, the Service uses a number of instruments for carrying out specific research programs which may involve individual specialized instruments or minor instrumented networks that may be operated for a limited time only.

Considerable effort has gone into the improvement of instruments for measuring precipitation. An improved ordinary standard raingauge has been developed and introduced to replace the standard that was used for over 100 years. Development was completed on a unique new recording raingauge for measuring rainfall accurately. The principle of this raingauge is also being used in a heated liquid surface gauge which is being developed for the measurement of solid precipitation. Radar is used to detect the presence and location of water droplets and ice crystals over an area of 10,000 square miles and, in principle, a quantitative estimate of the precipitation falling over this area may be derived from a measurement of the intensity of the electromagnetic scattering from the precipitation particles. Auxiliary equipment is now under development which will process the output from weather radar sets to allow the precipitation over the 10,000-sq. mile area to be automatically evaluated and archived for climatological purposes. The equipment will also allow the precipitation patterns to be quantitatively assessed in real time by the use of a computer, so that the results may be immediately applied in flood control.

There is a requirement to introduce automation into meteorological observing. Automatic Weather Stations have been developed to operate at locations where power and teletype communication links are available. Research and development is also under way to develop an inexpensive and reliable station to operate at completely remote locations on land and sea. This latter development presents difficult technical problems as these stations must function under the extremes of Canadian climate and operate and communi-



cate on a minimum of power. One development of a second generation of stations is well under way which incorporates the latest solid state techniques and will be completely modular in order to minimize the "on site" maintenance. Prototypes are being tested in the Arctic.

Work on the improvement of instruments used at airports to provide direct, real time information on wind, altimeter setting, runway visual range, etc., is under way, urgently required because the great increase in the size of airports and the trend to all-weather operation which requires measurements at a sub-network of points on the airfield. The complexity of the problem is augmented by the multiplicity of readouts required for Air Traffic Control and other purposes; the only viable solution is to process and distribute the information by computers.

In the fields of hydrology, agriculture, forestry and atmospheric pollution, a number of automatic data-logging systems are being developed and a variety of specialized sensors and supporting equipment. Typical of this activity is the development of a large hybrid weighing lysimeter, the function of which is to provide a standard against which various evapo-transpiration measuring devices may be compared; it calls for a sensitivity of one pound in weighing a block of soil for a total weight of 130,000 pounds. Two designs of automatic recording evaporation pans are being developed to facilitate research into energy balances of such pans in which the lysimeter will be used as a reference.

Facilities for test and calibration of a wide variety of meteorological sensors, including temperature, humidity, pressure and precipitation sensors, are being constantly improved. The new service headquarters in Toronto, in use since mid-1971, contains an accurate humidity calibration chamber and a large low-speed wind tunnel which includes flow-conditioning equipment and is capable of being opened to the outside atmosphere.

### **Section 3.—Scientific Research Supported by Provincial Governments**

#### **Subsection 1.—Provincial Organizations**

Six of Canada's provincial governments (Nova Scotia, New Brunswick, Quebec, Manitoba, Saskatchewan and Alberta) have established research councils or foundations and two others (Ontario and British Columbia) have assisted financially in the setting up of such organizations. Most provincial governments have university laboratories to consult, particularly about local industrial and agricultural problems, and many individual departments have facilities for research in their particular fields of endeavour or assist research through the provision of financial aid to students working in those and other scientific fields. Agriculture is particularly well covered because of its importance as an export industry but the provinces are also intensely interested in their other natural resources. Their efforts in the fields of agriculture, mining, forestry and fisheries are outlined in the Chapters dealing with those subjects (see Index).

**Nova Scotia Research Foundation.**—This body was created by the Government of Nova Scotia in 1946 to provide industry and government with scientific and technical assistance in finding new and better ways to utilize the natural resources of the province and to assist the process industries. To this end, it seeks to correlate and further scientific and technical work on local problems and available resources. A new \$1,500,000 laboratory building, financed by an Atlantic Development Board grant and occupying a 10-acre site in Dartmouth, was occupied in 1969. Equipment was provided through a grant of \$500,000 from the federal Department of Regional Economic Expansion. The present staff of 71 includes 48 scientists and technicians. It is governed by a board made up of scientists and industrialists.

The Foundation is made up of seven Divisions. The Geophysics Division carries out gravity, seismic, magnetic, well-logging and electromagnetic surveys for industry and for

government, and also sponsors a program of research on the surficial geology of Nova Scotia. The Chemistry Division carries out water, mineral and foliar analysis as well as pilot plant studies on chemical processes. One of its main tasks is to develop new commercial processes and products which utilize the existing minerals and other natural resources of the province. The Operational Research Division provides a service for industry and government by utilizing the mathematical techniques of systems analysis. The Division also undertakes projects in the area of optimal resource allocation, production scheduling and distribution. The Engineering Physics Division makes available developments in applied physics to Nova Scotia industry. Emphasis is at present placed on research and development in electronic and mechanical engineering and in non-destructive testing. The Technical Services Division provides technical information on materials, equipment and processes and gives industrial engineering assistance to manufacturing industries. The various sections include technical information, industrial engineering, an information centre and an extensive aerial photo library. The Applied Biology Division has been carrying out field and laboratory studies on the ecology, distribution, growth, harvesting techniques, conservation and cultivation of commercial algae in the Atlantic area. The Library is well stocked with scientific and technical information to aid the Research Foundation staff, industry and government.

A *Research Foundation Bulletin*, issued occasionally, keeps industry advised of Foundation activities and of important discoveries in science and technology. The *Research Record* gives a descriptive account of past research projects.

**New Brunswick Research and Productivity Council.**—The Council is a body corporate set up in 1962 by an Act of the Government of New Brunswick. It is governed by an independent group of prominent citizens from management, labour, the professions, etc., which meets four times a year. Members are appointed for three-year terms by the Lieutenant-Governor in Council, one as chairman who reports to the Premier annually. The greater part of the capital investment was provided by the Government of Canada but the province makes an annual operating grant from its Consolidated Revenue Fund. Additional funds are derived from cost-recovery fees, services under contract, sponsorship, etc. The Executive Director has charge of all matters relating to the administration of the Council affairs and has supervision over and direction of the work of the staff.

The Council maintains a well-equipped centre for engineering and problem-solving, industrial research and development and, in addition to its provincially oriented projects, conducts research on a cost-recovery basis for clients in other areas of Canada and in other countries.

**Quebec Industrial Research Institute.**—The Quebec Industrial Research Institute was set up under the terms of an Act of the National Assembly (SQ 1969, c. 62), given Royal Assent on Dec. 12, 1969. The Institute is made up of 15 members named by the provincial government after consultation with the most representative scientific and industrial organizations of the province. Its functions are: (1) research in applied science carried out either in its own laboratories or in those of other research institutes; (2) development of products, processes and apparatus of an industrial or scientific nature; and (3) collection and dissemination of technological and industrial information. The Institute, which is an independent organization, will be financed for the five years 1970-74 by provincial grants of \$4,000,000 a year. Headquarters are located at Ste-Foy, Quebec (10).

**Ontario Research Foundation.**—The Ontario Research Foundation, established in 1928, is an independent corporation. It derives its powers from a special Act of the Ontario Legislature and is responsible to a Board of Governors consisting of leading members of the industrial, commercial and scientific communities who are appointed by the Lieutenant-Governor in Council. The organization was financed initially by an endowment fund, provided by industrial and commercial corporations through the Canadian Manufacturers' Association, and an equal block grant from the provincial government. Most of

its current income is derived from contract research undertaken mainly for industry. In recent years the Ontario Government has provided a direct annual grant to ORF, the amount of which is directly proportional to ORF's income from industry.

The Foundation is concerned primarily with the development of Canadian industry through the application of science and technology. Also, through the various departments of the Ontario Government, it undertakes work relative to the natural resources of the province. Foundation activities are not restricted to the province; work is undertaken for any organization in Canada on the same basis.

The Foundation contributes to the industrial economy and to the general welfare by: (1) undertaking industrial research and development for companies as requested; (2) undertaking research and development for governmental agencies as requested, particularly with respect to natural resources and to defence; (3) providing and maintaining an effective and efficient applied research and development facility for the use of industry and government agencies, using funds provided by the Ontario Government to support the back-up research necessary for this purpose; and (4) bringing to the attention of industry and governmental agencies research opportunities that promise economic or social benefits.

Situated in the Sheridan Park Research Community, 17 miles west of Toronto, and serving as the nucleus of that scientific centre, ORF provides the most modern facilities and equipment for scientific and technological investigations. Its staff of approximately 275 scientists, engineers, technicians and service personnel has diversified academic training and industrial experience and is so organized that these specialized talents can be applied to individual research and development projects. In effect, the staff of ORF constitutes a reservoir of scientific and technical abilities from which industrial or governmental sponsors can draw at will.

Since its establishment, ORF has provided numerous companies—from the very small to the very large—with research and development services. These have ranged from short-term investigations and feasibility studies, through product and process development, to long-range fundamental scientific investigations. All research and development projects are conducted on a confidential basis—this includes all business, technical or proprietary information revealed to ORF by clients or prospective clients. Patents resulting from research and development studies are assigned to the client.

**Manitoba Research Council.**—The Manitoba Research Council consists of seven members and 12 advisory members representing natural-resource-based industry, manufacturing, labour, the universities and government. Permanent staff members are provided by the provincial government. Its work is financed by provincial government appropriations, although fees and service charges may be levied for its services. The objectives of the Council are to promote or carry out, or cause to be promoted or carried out, research and development investigations related to the natural resources and industrial operations of the province. At present, research sponsored by the Council is performed in the existing research laboratories of the province. Much of the research is aimed at establishing Manitoba as a centre of excellence in food products, electronics, materials research and building systems. In addition, through a technical information service, industries are encouraged to incorporate in their operations new technological developments. The main reason for the establishment of the Council is to assist Manitoba industry to improve its market position by developing a more scientifically based production capability. The Council maintains an office in the Provincial Government Administration Building (Norquay Building) in Winnipeg.

**Saskatchewan Research Council.**—This Council was set up in 1947 under an Act of the Government of Saskatchewan. The Council carries out research in the physical sciences with the aim of improving the provincial economy. It is therefore particularly concerned with the commercial exploitation of provincial resources and the scientific aspects of business. At first the Council had no scientific personnel and laboratory facilities



of its own. Its research program was carried on at the University of Saskatchewan and was promoted by means of grants to members of the staff and scholarships to graduate students. The 1947 Act was amended in 1954 to empower the Council to acquire property, employ staff and conduct its own financial affairs. Laboratory buildings were erected on the university campus in 1957 and were extended in 1963. In the present program of research the emphasis is on water and mineral resources, fields of agriculture not covered by other organizations, technical assistance to industry and transportation of solids in slurry form by pipeline. A large part of the program is carried out by the permanent staff, numbering about 60, but some of the Council's research is still promoted by grants to university staff. The members of the controlling body, the Council proper, are appointed by the Lieutenant-Governor in Council and consist of representatives of the Saskatchewan Government, the university and industry.

**Research Council of Alberta.**—The Province of Alberta set up a scientific and industrial Research Council in co-operation with the University of Alberta in 1921, the promotion of mineral development within the province being the chief purpose leading to its establishment. The present program is directed mainly toward the development of the natural resources of the province and toward the establishment of new industries within the province. The principal areas of activity are fossil fuels development and utilization, geological surveys and research, groundwater, soils, industrial minerals, chemical product and process development, microbiology, technical assistance to industry, gasoline and oil testing, pipeline transportation, highway research, river engineering, environmental studies and hail research.

The operations of the organization are controlled by a Council of 10 individuals representative of the Alberta Government, the universities and industry. The various research fields are reviewed by advisory committees of specialists drawn from industry, the universities and the provincial government. The programs of the Research Council of Alberta are financed principally by provincial government appropriations, although an increasing amount of income is derived from contract research.

The main Council laboratories and offices are located on the University of Alberta campus in Edmonton. A pilot plant and laboratory facility is located in the Clover Bar area east of the city. The full-time staff comprises approximately 200 scientists, engineers, technologists and supporting personnel.

**B.C. Research.**—B.C. Research is the technical operation of a non-profit, industrial research society—the British Columbia Research Council—with offices and laboratories at 3650 Wesbrook Crescent, Vancouver 8, B.C. Its function is to enable even the smallest firms to improve their competitive position in Canadian and world markets by the use of the most up-to-date scientific knowledge. B.C. Research carries out contract research for clients on a confidential basis, initiates "in-house" research programs designed to promote and utilize the resources of the province, and provides a free technical information service in collaboration with the National Research Council. B.C. Research is active in the areas of applied biology, chemistry, engineering, physics, operations research, industrial engineering, industrial market studies and economic feasibility studies.

## **Subsection 2.—Expenditures of Provincial Organizations on Scientific Activities**

As stated in Subsection 1, eight provinces have established research councils or foundations, each having the primary role of assisting firms with technical problems and of aiding with the development of provincial natural resources. Table 4 shows the approximate expenditures of these establishments as reported in the latest Statistics Canada biennial survey of expenditures on industrial research and development in Canada. There seem to be two main differences between the pattern shown for these provincial establishments and

that shown for industrial research and development expenditures as a whole—the first is that wages and salaries seem to account for a larger portion of current intramural costs and the second is the relative unimportance of extramural payments.

#### 4.—Expenditures on Research and Development by Provincial Research Councils and Foundations, 1965-70

Type	1965	1966	1967	1968	1969	1970 <sup>1</sup>
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000
<b>Intramural Expenditures</b> .....	<b>9.9</b>	<b>13.0</b>	<b>13.5</b>	<b>14.6</b>	<b>16.6</b>	<b>13.9</b>
Current—						
Wages and salaries.....	4.2	4.7	5.4	6.0	6.8	7.4
Other.....	2.8	3.3	3.0	4.3	4.6	4.8
Capital—						
Land and buildings.....	2.3	4.2	3.8	2.9	3.5	0.3
Equipment.....	0.6	0.8	1.3	1.4	1.7	1.4
<b>Extramural Expenditures</b> .....	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>0.2</b>	<b>0.2</b>
<b>Totals, Expenditures</b> .....	<b>10.0</b>	<b>13.1</b>	<b>13.6</b>	<b>14.7</b>	<b>16.8</b>	<b>14.1</b>

<sup>1</sup> Forecast by respondents.

As shown in Table 5, provincial governments are by far the most important source of funds, although some councils or foundations rely on them more than others. The contribution of the Federal Government was the second largest source of revenue in 1969 and payments for research and development contracts from Canadian industry provided most of the remaining funds. Table 6 shows that total personnel employed by these establishments increased 21 p.c. from 1965 to 1969.

#### 5.—Percentage Distribution of Funds for Research and Development Performed by Provincial Research Councils and Foundations, 1965, 1967 and 1969

Source	1965	1967	1969	Source	1965	1967	1969
	p.c.	p.c.	p.c.		p.c.	p.c.	p.c.
Self.....	3.0	3.0	6.0	Other Canadian.....	—	—	2.0
Provincial governments.....	65.0	64.0	50.0	Foreign.....	3.0	3.0	4.0
Federal Government.....	8.0	14.0	21.0				
Canadian industry.....	20.0	16.0	17.0	<b>Totals</b> .....	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

#### 6.—Personnel Engaged in Research and Development by Provincial Research Councils and Foundations, 1965, 1967 and 1969

(Full-time equivalents)

Type	1965	1967	1969	Type	1965	1967	1969
	No.	No.	No.		No.	No.	No.
<b>Scientists and Engineers</b> ....	<b>253</b>	<b>263</b>	<b>311</b>	<b>Administrators</b> .....	<b>18</b>	<b>20</b>	<b>20</b>
Engineers.....	80	87	126	<b>Supporting Personnel</b> .....	<b>327</b>	<b>352</b>	<b>395</b>
Chemists.....	79	79	81	Technicians.....	168	198	220
Earth scientists.....	36	37	33	Workers.....	33	28	45
Other physical scientists....	18	26	33	Others.....	126	146	130
Life scientists.....	34	32	22				
Other.....	6	7	16	<b>Totals, Personnel</b> ....	<b>598</b>	<b>670</b>	<b>726</b>

### Section 4.—University Research\*

The traditional role of universities, which is to generate, organize and transmit knowledge, makes essential their involvement in the performance of research. The kind of research they conduct is conditioned to a large extent by their special needs and responsibilities. Because it is important that faculty members remain at the forefront of knowledge in their discipline and at the same time retain the breadth required to organize and transmit new knowledge effectively, they have traditionally favoured basic research as the vehicle for the achievement of these objectives. The result has been that universities have become the principal performers of basic research in Canada. It is estimated that 70 p.c. of all research performed in the universities is in the category of basic research and this relatively high proportion is to some extent a reflection of the mechanisms by which Canadian university research is funded.

University research in Canada is funded from a multitude of sources. A large part of the total cost is covered from funds not specifically assigned to research activities. The proportion of such funding that should be attributed to research is often a matter of opinion, particularly as regards the apportioning of academic salaries between teaching and research, the division between research and graduate instruction, the cost of accommodation and maintenance, etc. A special study conducted for the Science Council of Canada and the Canada Council† indicated that in 1966-67 the total cost of research in Canadian universities was of the order of one half of the total ordinary university expenditure. This type of in-depth analysis has not yet been repeated, but no major change of this percentage is anticipated. Most of this cost is borne by the provincial and federal governments in accordance with their constitutional responsibilities—the provincial jurisdiction over education and the federal responsibility for research.

The main elements in the cost of research are: (1) assisted research funds—grants and contracts to institutions or members of the staff; (2) awards—research fellowships and scholarships; (3) pro-rated value of faculty time devoted to research; and (4) other indirect costs—pro-rated costs of libraries, administration, maintenance, publications, etc. The appropriate part of the capital cost of buildings and facilities is often included in operating expenditures, e.g., when financed from grants for assisted research. Most of the research equipment is provided through such grants. The last two elements in the list are not normally broken out in university accounts, as stated before. These indirect costs are covered primarily from general funding of university education by the provincial governments. However, in accordance with the Federal-Provincial Fiscal Arrangements Act, 1967, the Federal Government reimburses the provinces for at least 50 p.c. of the operating costs of all post-secondary education. It follows that one half of the above indirect cost of research is, in the end, covered by federal funding.

The assisted research funds represent the direct costs of research. They include all funds channelled through universities, even though most of them are assigned to individual researchers. These funds cannot be used to provide or supplement the salaries of the staff. They pay for equipment, materials, travel and research assistance, including student assistance. The scholarships and fellowships have a converse objective; they provide or complement the personal income of the staff on sabbatical leave and of graduate students or post-doctorate fellows to permit them to devote their time to research. Some of these are tenable abroad and some are reserved for foreign students in Canada as a part of foreign aid.

Most of the assisted research funding is granted for specified purposes—mainly in response to proposals coming from the universities. These grants thus have the most direct influence on both the magnitude and the nature of university research. They can

\* Revised by J. Miedzinski of the Science Council of Canada staff.

† Macdonald, J. B., et al., "The Role of the Federal Government in Support of Research in Canadian Universities", Queen's Printer, Ottawa, 1969, pp. 37 & 50. This study used some advanced information from "An Exploratory Cost Analysis of Some Canadian Universities", Association of Universities and Colleges of Canada, Ottawa, 1970.



be used therefore as a gauge of research activities in Canadian universities. During the past decade, the assisted research funds gradually rose from \$26,500,000, representing 12.5 p.c. of the total operating expenditure in 1961-62 to \$125,000,000 or 14.1 p.c. in 1968-69. This means that the assisted research funds represented nearly 30 p.c. of the total cost of university research in the latter part of the decade.

The assisted research funds come from several sources. The major sources in 1968-69 were:

<i>Source</i>	<i>Assisted Funds</i>	<i>P.C. of Total Funds</i>
	\$'000,000	
Federal Government.....	86.3	69.1
Provincial governments.....	17.3	13.8
Business enterprise (estimate).....	3.4	2.7
Foundations (estimate).....	9.9	7.9
Others (estimate).....	8.1	6.5
ALL SOURCES.....	125.0	100.0

The above distribution has shown only a slow variation over the past few years. It indicates the predominant influence of federal financing on university research in Canada; this would still be true if direct awards to individuals (research scholarships and fellowships) were included in the above figures. The assisted research funds include the support of social sciences and humanities but that part represents only a small percentage of the total shown here, particularly since most of such support is in the form of direct awards, by-passing university accounts.

The federal support of research in universities consists of three main components coming from two types of sources. The main elements are the grants and contracts program, the awards (scholarship and fellowship) program and the support of related scientific activities—research publications, acquisition of research collections and symposia. The sources are: (1) the granting councils—the National Research Council (NRC) and the Medical Research Council (MRC),\* and (2) the mission-oriented government departments or agencies. The total support coming from these sources in recent years is shown in Table 7, which includes the support of non-profit organizations and covers development as well as research. The development component is small and the line between research and development is difficult to draw in many fields, such as health sciences. The non-profit institutions for the most part consist of hospitals and research institutes where research is carried out mainly by academics. On the other hand, scholarships supporting primarily education rather than research, fellowships tenable abroad, and support of some related activities are excluded.

The table shows the extremely important role played by the NRC and the MRC in the support of university research, since about 70 p.c. of the federal funding comes from these two Councils. The National Research Council has the responsibility for supporting research in the natural sciences and in engineering; it is the largest sponsor of research in Canada. The Medical Research Council, under its new Act passed in 1969, assumes the responsibility for research support in all the disciplines in the health sciences; this represents an extension of its former terms of reference which encompassed only medical research.

The purpose of the support of research by the Councils is the healthy and balanced development of knowledge in Canadian universities rather than the support of a particular mission of their own. They award grants mainly or largely in response to initiatives from the universities and their criteria for support are based mainly on the merits of the individual researcher and the excellence of the project. The direct utility of the knowledge sought is generally not given high priority in assessing a project. These funding policies have favoured the development of basic research of a high calibre in Canadian universities.

\* See pp. 296-299.

The MRC has the greater tendency toward preferential funding of research in certain areas which are indicated by their studies as needing more effort; approximately 50 p.c. of its funding is set aside for this purpose. The NRC exerts influence to a similar purpose through "negotiated development grants" which amount to about 10 p.c. of the total funding and by indicating to prospective grantees the areas in which more proposals would be desirable.

The total granting budgets of the two Councils are significantly larger than the amounts entered in Table 7; the totals are shown in Table 8, with a breakdown intended to match as closely as possible the elements in the costs of research listed on p. 474. The main reason for the difference between the two tables lies in the degree to which indirect support of research is included in the statistics. The most important feature of Table 8 is the sharp change shown in the rate of growth of funding by the two Councils, from a rapid growth in the 1960s to marginal increases in the 1970s. There is no corresponding change in the growth of the number of university staff and students shown in Table 9.

### 7.—Federal Support of Research and Development in Universities and Non-profit Institutions, Years Ended Mar. 31, 1968-72

(Millions of dollars)

Department or Agency	1967-68	1968-69	1969-70	1970-71	1971-72 <sup>1</sup>
National Research Council (NRC).....	37.9	49.8	55.5	55.3	57.7
Medical Research Council (MRC).....	18.5	25.1	28.0	30.7	32.7
Totals, NRC and MRC.....	56.4	74.9	83.5	86.0	90.4
National Health and Welfare.....	14.5	17.5	11.7	10.9	15.6
Atomic Energy Control Board.....	2.5	3.6	5.4	7.1	8.1
Defence Research Board.....	3.7	3.2	3.4	3.3	3.5
Environment.....	1.2 <sup>2</sup>	1.5 <sup>2</sup>	2.4	2.5	2.8
Regional Economic Expansion, Atlantic Development Board.....	1.4	—	3.7	3.3	1.2
Others.....	2.5	2.8	3.2	5.2	6.2
Totals, Other Departments or Agencies....	25.8	28.6	29.8	32.3	37.4
<b>Totals, All Agencies.....</b>	<b>82.2</b>	<b>103.5</b>	<b>113.3</b>	<b>118.3</b>	<b>127.8</b>
Percentage of total supported by NRC and MRC.	68.6	72.4	73.7	72.7	70.7

<sup>1</sup> Estimates.

<sup>2</sup> Contribution from some activities in other departments taken over by the Department of the Environment when it was formed.

### 8.—National Research Council and Medical Research Council Funding, Years Ended Mar. 31, 1968-72

(Millions of dollars)

Item	1967-68	1968-69	1969-70	1970-71	1971-72 <sup>1</sup>
National Research Council—					
Assisted research funds.....	37.8	47.5	53.2	53.1	55.2
Direct awards (scholarships and fellowships) <sup>2</sup>	6.3	9.7	9.6	9.5	10.1
Related scientific activities.....	1.3	2.1	2.3	2.3	2.4
Totals, NRC.....	45.4	59.3	65.1	64.9	67.7
Medical Research Council—					
Assisted research funds.....	18.5	23.4	26.4	29.1	30.3
Direct awards (scholarships and fellowships) <sup>2</sup>	1.6	3.3	4.3	4.7	5.1
Related scientific activities.....	0.3	0.2	0.2	0.1	0.2
Totals, MRC.....	20.4	26.9	31.0	33.9	35.6
<b>Totals, NRC and MRC.....</b>	<b>65.8</b>	<b>86.2</b>	<b>96.1</b>	<b>98.8</b>	<b>103.3</b>

<sup>1</sup> Estimates.

<sup>2</sup> Includes fellowships totalling \$1,000,000 to \$1,500,000 made available every year by the two Councils, which are tenable abroad.

**9.—Numbers of Full-Time Faculty and Graduate Students in Pure, Applied, Biological and Health Sciences, Years Ended Mar. 31, 1968-72**

Item	1967-68	1968-69	1969-70	1970-71	1971-72 <sup>1</sup>
	'000	'000	'000	'000	'000
<b>Total Faculty</b> .....	<b>16.4</b>	<b>18.7</b>	<b>22.9</b>	<b>26.1</b>	<b>29.3</b>
Pure science.....	2.7	2.9	3.3	..	..
Applied science and engineering.....	1.5	1.6	1.9	..	..
Biological and health sciences.....	3.0	3.5	3.9	..	..
<b>Total Graduate Students</b> .....	<b>24.2</b>	<b>26.1</b>	<b>30.2</b>	<b>33.7</b>	<b>37.7</b>
Pure science.....	6.4	7.3	7.1	..	..
Applied science and engineering.....	2.6	3.1	3.3	..	..
Biological and health sciences.....	2.5	2.8	2.8	..	..

<sup>1</sup> Estimates.

The almost explosive growth that occurred in university research during most of the 1960s appears to be moderating as the 1970s begin. Some noticeable trends have occurred in recent years in Canadian university research that may be expected to continue and perhaps to accentuate in the years immediately ahead. Foremost among these is the move to break down the rigid barriers that have existed between disciplines on university campuses. With increasing frequency, projects are being undertaken and research institutes established that depend on the co-operative initiative of two or more departments, faculties or even universities. Noteworthy also is the relatively recent trend toward a greater degree of specialization on the part of universities. Special grants (Negotiated Development Grants), made available by the NRC and by the MRC, give positive inducement to universities to follow this policy of specialization. Recent recommendations by the Science Council have advocated more support for university research from the mission-oriented departments, with the NRC and the MRC (together with the Canada Council) assuming more of a balancing role and ensuring that no legitimate discipline is neglected. These Councils have established a co-ordinating committee to ensure that no gaps exist in their joint coverage. Furthermore, the problems of rationalization of university research, establishment of criteria for selection of projects and for distribution of support among disciplines or problem-oriented work are under active public discussion and are the subject of a number of special studies, which may lead to a considerable evolution of university research in Canada during the 1970s.

## Section 5.—Industrial Research

### Subsection 1.—Industrial Research and Development Activities

After a period of substantial growth, expenditures on industrial research and development by Canadian firms, particularly those associated with fabrication and end-product manufacture, are beginning to level off. The creation and expansion of industrial research and development units to meet competition from other Canadian and foreign firms and to exploit efficiently the country's natural resources, has occurred. In the early 1960s, capital and operating expenditures for industrial research and development (R&D), encouraged by the growth in markets, production facilities, financial resources and supplies of technically skilled manpower, increased rapidly as shown in the chart on p. 438. Toward the end of the decade, total expenditures tended to remain almost constant, accompanied by a lack of growth in the professional and supporting personnel. This was partly a consequence of several laboratories closing or reducing their size and no new laboratories being established.



The Federal Government recognizes the need for a strong research and development effort in Canada and has inaugurated several programs of direct assistance. The Department of Industry, Trade and Commerce administers the Defence Industry Productivity Program and the Programme for the Advancement of Industrial Technology. The National Research Council and the Defence Research Board make grants in support of industrial research projects. In addition, the Industrial Research and Development Incentives Act (IRDA) authorizes the Department of Industry, Trade and Commerce to make substantial grants to firms expanding their research and development programs (see p. 464).

The Programme for the Advancement of Industrial Technology, which was established in 1965 as the civil counterpart of the Defence Industry Productivity Program, is of particular interest because of its innovative slant and selective nature. Its basic aim is to help Canadian secondary industry upgrade its technology and expand its innovative activity by underwriting the technical and market risks of specific product or process development projects which involve a significant advance in technology. The program was amended in 1971 by the Department of Industry, Trade and Commerce with assistance extended to operations and market research, systems and application studies, and similar activities. These must serve to define, in the light of market requirements, the specifications for a product or process to be developed, or to assess the market potential and commercial feasibility of the project. Priority goes to projects that increase productivity or otherwise contribute directly to attain a unique capability or technical leadership, taking advantage, where possible, of Canada's natural resources and skills.

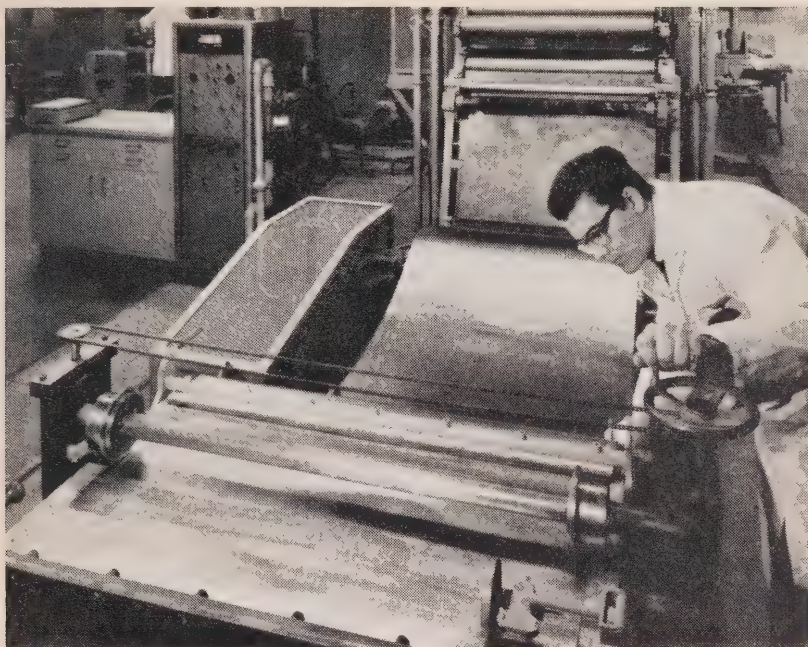
In recent years the total direct federal support for industrial research and development (incentive schemes and contracts) has been as follows:—

<u>Year</u>	<u>Amount</u>
	\$'000,000
1965-66.....	75.5
1966-67.....	83.7
1967-68.....	84.4
1968-69.....	109.0
1969-70.....	109.8
1970-71 (projected).....	135.6
1971-72 (estimated).....	140.1

**Employment Related to Research and Development Activities.**—The level of employment of scientists and engineers in the various areas of industrial research and development gives a measure of the corresponding activity. The first 10 industries rank as follows (1969):—

<u>Rank</u>	<u>Industry</u>	<u>Scientists and Engineers in R&amp;D</u>	<u>Percentage of Total</u>
		No.	
1	Electrical products.....	2,104	28
2	Other chemical products.....	926	12
3	Aircraft and parts.....	656	9
4	Primary metals (non-ferrous).....	462	6
5	Paper.....	451	6
6	Drugs and medicines.....	378	5
7	Scientific and professional instruments.....	330	4
8	Machinery.....	306	4
9	Petroleum products.....	304	4
10	Food and beverages.....	219	3
	Other industries.....	1,345	19
	ALL INDUSTRIES.....	7,481	100

The above 10 industries absorb some 81 p.c. of the scientists and engineers employed in research and development. The first three industries alone employ about 50 p.c. of



A machine developed by the Cominco Product Research Centre at Sheridan Park, Ont., to cast continuously thin lead sheet has significantly reduced costs and made its use an economic reality. Thin lead sheet has proved a highly effective sound and moisture barrier and its acceptance by the construction industry is widening rapidly.

R&D personnel in Canada, and account for over 50 p.c. of all current intramural expenditures on R&D. About 26 p.c. of the scientists and engineers in industry have advanced degrees equally divided between master of science and doctorate degrees at about 13 p.c. each.

One possible method of identifying research-intensive industries is to compare the number of scientists and engineers involved in R&D with the total number of persons employed by the industry. Based on this criterion, the 10 leading industries are as follows (1969):—

<i>Rank</i>	<i>Industry</i>	<i>R&amp;D Scientists and Engineers per 1,000 Employees</i>
1	Drugs and medicines.....	42
2	Scientific and professional instruments.....	33
3	Aircraft and parts.....	26
4	Electrical products.....	21
5	Gas and oil wells.....	16
6	Other non-manufacturing.....	16
7	Other chemical products.....	15
8	Rubber.....	11
9	Petroleum products.....	8
10	Machinery.....	7

For all industries reporting, there were seven scientists and engineers per 1,000 employees. The above industries accounted for sales of some \$31,000,000,000 in 1969.

### Subsection 2.—Industrial Research and Development Expenditures

The latest biennial Statistics Canada survey of expenditures on research and development in Canadian industry was carried out in 1970, securing data for the year 1969. Results of that survey appear in Statistics Canada publication *Industrial Research and Development Expenditures in Canada, 1969* (Catalogue No. 13-203); they are summarized in this Subsection.

In the latest survey, 1,010 firms reported expenditures on R&D for 1969. The total amount expended (current and capital) reached \$431,300,000, an increase of about 13 p.c. over 1968. Current intramural expenditures, reported by 899 firms, amounted to \$340,700,000, an increase of 12 p.c. over 1968. However, it should be noted that, in the past few years, current intramural expenditures have tended to grow at a less rapid rate than in the early 1960s and that a decrease was forecast for 1970. This decline might be related to the general economic conditions prevalent at the time of the survey. The size of extramural research and development payments made abroad by Canadian firms did not increase very much since the previous survey but in 1969 companies reported spending abroad about twice as much as they received for research purposes from other countries.

#### 10.—Total Industrial Research and Development Expenditures, 1966-70

Item	1966	1967	1968	1969	1970 <sup>1</sup>
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000
<b>Current Expenditures—</b>					
Intramural costs.....	266.4	290.6	305.1	340.7	338.4
Wages and salaries.....	138.2	158.9	164.9	184.1	192.6
Other.....	128.2	131.7	140.2	156.6	145.8
Extramural payments.....	30.5	37.8	40.0	41.3	47.1
In Canada <sup>2</sup> .....	2.3	3.3	3.7	3.9	4.2
Outside Canada.....	28.2 <sup>3</sup>	34.5	36.3	37.4	42.9
<b>Totals, Current Expenditures.....</b>	<b>296.9</b>	<b>328.4</b>	<b>345.1</b>	<b>382.0</b>	<b>385.5</b>
<b>Capital Expenditures—</b>					
Land and buildings.....	18.4	12.9	9.4	18.6	19.0
Equipment.....	32.3	30.8	26.3	30.7	34.0
<b>Totals, Capital Expenditures.....</b>	<b>50.7</b>	<b>43.7</b>	<b>35.8</b>	<b>49.3</b>	<b>53.0</b>
<b>Totals, All Expenditures.....</b>	<b>347.6</b>	<b>372.1</b>	<b>380.9</b>	<b>431.3</b>	<b>438.5</b>

<sup>1</sup> Forecast by respondents.

<sup>2</sup> Adjusted by Statistics Canada to remove those payments made by one Canadian firm to another, since such payments are covered in the intramural costs.

<sup>3</sup> Statistics Canada estimate.

Table 11 shows the current intramural research and development expenditures by performing industries. In 1969, three industries—electrical products, aircraft and chemical products—accounted for about 55 p.c. of the total expenditures and an estimated 52 p.c. in 1970. Since 1955, the year of the first survey, these industries have spent more for current intramural research and development than all others combined.



## 11.—Current Intramural Research and Development Expenditures, by Industry, 1966-70

Industry	1966	1967	1968	1969	1970 <sup>1</sup>
	\$'000	\$'000	\$'000	\$'000	\$'000
Mines.....	7,901	9,217	9,726	10,224	10,602
Gas and oil wells.....	2,600	2,891	2,923	2,820	2,724
Manufacturing—					
Food and beverages.....	6,788	8,064	8,295	8,812	9,622
Rubber.....	3,058	3,405	3,832	4,194	4,469
Textiles.....	3,801	3,764	4,281	4,691	5,113
Wood.....	379	810	827	656	583
Furniture and fixtures.....	111	181	200	247	257
Paper.....	19,031	18,845	19,039	19,737	20,734
Primary metals (ferrous).....	5,179	5,516	5,783	5,998	7,179
Primary metals (non-ferrous).....	11,894	14,717	13,216	19,043	21,156
Metal fabricating.....	2,731	2,875	3,908	4,929	4,688
Machinery.....	10,562	13,350	14,757	17,159	18,898
Aircraft and parts.....	50,048	39,683	40,401	47,342	33,219
Other transportation equipment.....	2,345	4,326	4,902	8,264	8,777
Electrical products.....	68,801	83,570	85,018	90,636	91,927
Non-metallic mineral products.....	2,103	2,327	2,983	3,383	3,782
Petroleum products.....	13,566	15,869	19,179	19,079	13,537
Drugs and medicines.....	7,915	9,481	10,924	12,042	13,223
Other chemical products.....	29,066	30,945	30,404	33,216	36,237
Scientific and professional instruments.....	8,787	9,119	8,720	10,687	10,498
Other manufacturing.....	1,983	2,499	3,560	3,736	3,431
Totals, Manufacturing.....	248,148	269,346	280,229	313,851	307,330
Transportation and other utilities.....	3,664	4,491	7,055	7,364	10,458
Other non-manufacturing.....	4,093	4,701	5,224	6,432	7,324
Totals, All Industries.....	266,406	290,646	305,157	340,691	338,438

<sup>1</sup> Forecast by respondents.

Because of difficulties of interpretation and estimation, the figures shown in Table 12 cannot be more than approximations. However, they do indicate that the research and development performed within an industrial group may be for the benefit of some other related industry or for a new 'industry'. Furthermore, company groups may have been assigned to one industry, whereas the activities of the group, including research and development, may actually cover several industries. For example, research and development for the aircraft industry was largely for other products—about \$11,757,000 was spent on aircraft and \$2,899,000 on other transportation equipment.

## 12.—Current Intramural Research and Development Expenditures, by Product Group, 1969

Product Group	Amount	P.C. of Total	Product Group	Amount	P.C. of Total
	\$'000,000			\$'000,000	
Mining, extraction of mineral fuels.....	7.9	2.3	Household electrical products.....	3.1	0.9
Food and beverages.....	8.4	2.5	Other electrical products.....	3.8	1.1
Rubber products.....	4.9	1.4	Drugs and medicines.....	14.3	4.2
Textiles.....	8.9	2.6	Industrial chemicals.....	9.7	2.9
Forest products.....	15.8	4.6	Mixed fertilizers.....	1.3	0.4
Primary metals.....	32.4	9.6	Plastics and synthetic resins.....	11.7	3.4
Fabricated metal products.....	7.2	2.1	Other.....	8.4	2.5
Machinery.....	20.8	6.1	Petroleum products.....	15.9	4.6
Aircraft.....	42.2	12.4	Non-metallic mineral products.....	2.4	0.7
Guided missiles and space vehicles.....	2.8	0.8	Scientific and professional instruments.....	7.7	2.3
Motor vehicles.....	2.7	0.8	Other.....	11.3	3.3
Other transportation equipment.....	8.8	2.6			
Electronic equipment and computers.....	75.7	22.2			
Electrical industrial apparatus.....	12.6	3.7			
			Totals, All Groups.....	340.7	100.0

Table 13 gives sources of funds for total current and capital research and development expenditures. For all Canadian industry, the performing company is by far the most important source of funds, providing over 75 p.c. of such funds in 1969. However, since capital expenditures are not usually financed by governments or other companies supporting a firm's research and development program, the performing company would be a less dominant source of funds for current intramural expenditures—perhaps accounting for about 70 p.c. rather than 75 p.c. Other significant sources are the Federal Government, foreign governments and foreign related companies. Industries and firms do not rely on the same sources to the same extent. For example, about 62 p.c. of the research and development funds for the scientific and professional instruments industry seems to come from outside the performing company; the direct support of the Federal Government goes mainly to two industries—aircraft (42 p.c.) and scientific and professional instruments (28 p.c.); funds from foreign sources account for about 32 p.c. of intramural expenditures of the latter industry.

**13.—Sources of Funds for Intramural Research and Development, by Industry, 1969<sup>1</sup>**

Industry	Canadian Sources				Foreign Sources <sup>3</sup>	Total
	Reporting Company	Parent Affiliated and Subsidiary Companies	Government of Canada	Other <sup>2</sup>		
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Mines.....	9,867	—	779	215	161	11,022
Gas and oil wells.....	2,390	630	45	—	583	3,648
Manufacturing—						
Food and beverages.....	9,296	—	551	113	—	9,960
Rubber.....	3,356	—	548	—	507	4,411
Textiles.....	4,111	52	222	194	378	4,957
Wood.....	510	—	155	—	—	665
Furniture and fixtures.....	382	—	—	—	—	382
Paper.....	17,841	1,173	827	2,993	765	23,599
Primary metals (ferrous).....	6,790	33	179	18	31	7,051
Primary metals (non-ferrous).....	16,456	1,023	727	192	3,133	21,531
Metal fabricating.....	3,925	522	816	19	—	5,282
Machinery.....	15,364	579	941	285	1,411	18,580
Aircraft and parts.....	28,000	—	21,161	83	840	50,084
Other transportation equipment.....	6,775	24	1,608	20	310	8,737
Electrical products.....	70,553	6,052	19,718	3,659	2,665	102,647
Non-metallic mineral products.....	1,985	852	738	—	16	3,591
Petroleum products.....	22,150	24	191	8	447	22,820
Drugs and medicines.....	12,033	18	660	5	2,270	14,986
Other chemical products.....	34,552	51	1,317	58	284	36,262
Scientific and professional instruments.....	4,300	—	3,245	195	3,629	11,369
Other manufacturing.....	3,445	422	301	37	—	4,205
Totals, Manufacturing.....	261,824	10,825	53,905	7,879	16,686	351,119
Transportation and other utilities....	14,982	2,133	9	40	3	17,167
Other non-manufacturing.....	2,987	275	1,243	1,061	1,525	7,091
<b>Totals, All Industries.....</b>	<b>292,050</b>	<b>13,863</b>	<b>55,981</b>	<b>9,195</b>	<b>18,958</b>	<b>390,047</b>
Percentage of total funds.....	74.9	3.5	14.3	2.4	4.9	100.0

<sup>1</sup> Includes capital expenditures.

<sup>2</sup> Includes the membership fees of research institutes and payments for research and development performed under contract for non-related companies.

<sup>3</sup> Includes foreign governments.

## Section 6.—International Comparisons

A comparison of gross domestic research and development (R&D) expenditures in Organization for Economic Co-operation and Development (OECD) countries is given in Table 14. Within this group of countries there are wide differences in total resources, in

population, in defence commitments, and in industrial, commercial, social and political structure. Comparisons are therefore difficult. Moreover, the criteria used to obtain these statistics may vary from country to country.

#### 14.—Gross Domestic R&D Expenditures in OECD Countries and Current Expenditures, by Type of Activity, 1967

Country	Gross Domestic R&D Expenditures	Comparison with United States \$1,000 <sup>1</sup>	Current Intramural Expenditures by Type of Activity					
			Development		Applied Research		Basic Research	
			Expenditures	United States \$1,000 <sup>1</sup>	Expenditures	United States \$1,000 <sup>1</sup>	Expenditures	United States \$1,000 <sup>1</sup>
	\$'000,000 (U.S.)	\$	\$'000 (U.S.)	\$	\$'000 (U.S.)	\$	\$'000 (U.S.)	\$
Austria.....	62.2	2.8	..	..	..	..	..	..
Belgium.....	176.0	7.9	65,548.1	4.5	74,276.4	15.4	36,183.3	11.6
Canada.....	828.3	37.2	248,095.1	17.1	242,218.6	50.3	147,130.4	47.1
Denmark.....	90.4	4.1	35,812.0	2.5	21,627.1	4.5	17,404.0	5.6
Finland.....	50.6	2.3	..	..	..	..	..	..
France.....	2,506.8	112.5	1,198,321.0	82.5	870,044.8	180.7	438,384.8	140.5
Germany.....	2,084.3	93.5	1,352,524.5	93.2	..	..	325,424.9	104.3
Greece.....	11.3	0.5	2,925.7	0.2	4,621.3	1.0	2,048.4	0.7
Ireland.....	17.2	0.8	7,337.7	0.5	5,828.5	1.2	1,850.3	0.6
Italy.....	447.1	20.1	158,996.7	11.0	153,867.1	26.5	56,603.2	18.1
Japan.....	1,684.1	75.6	715,594.9	49.3	495,955.5	103.0	472,600.0	151.4
Netherlands.....	513.8	23.1	249,999.8	17.2	..	..	263,811.9	84.5
Norway.....	80.7	3.6	28,490.8	2.0	22,061.2	4.6	13,981.7	4.5
Sweden.....	336.1	15.1	..	..	..	..	..	..
Switzerland.....	304.0	13.6	..	..	..	..	..	..
United Kingdom.....	2,533.4	113.7	1,234,531.4	85.0	473,720.2	98.4	229,802.8	73.6
United States <sup>2</sup> .....	22,285.0	1,000.0	14,517,000.0	1,000.0	4,815,000.0	1,000.0	3,121,000.0	1,000.0
EEC.....	5,728.0	..	..	..	..	..	..	..
EEC and United Kingdom.....	8,261.4	..	..	..	..	..	..	..

<sup>1</sup> Obtained by dividing expenditure of each country by that of the United States (\$22,285,000,000) multiplied by \$1,000 to get a comparison with the U.S. as a base of \$1,000.

<sup>2</sup> 1966.

#### 15.—Total Manpower Working on R&D in OECD Countries, 1967

Country	Total Manpower on R&D	Qualified Scientists	Active Population Employed	Total Manpower on R&D to Active Population Employed	Qualified Scientists to Active Population Employed
	No.	No.	'000	p.c.	p.c.
Austria.....	6,620	2,401	3,182	0.21	0.08
Belgium.....	19,750	7,945	3,618	0.55	0.22
Canada.....	51,790	19,350	7,379	0.70	0.26
Denmark.....	8,378	3,919	2,310	0.36	0.17
Finland.....	2,026 <sup>1</sup>	2,026	2,131	..	0.10
France.....	193,457	49,224	19,782	0.98	0.25
Germany.....	205,866	61,559	25,803	0.80	0.24
Greece.....	2,730	1,217	3,587	0.08	0.08
Ireland.....	2,801	1,121	1,055	0.27	0.11
Italy.....	49,939	19,670	18,920	0.26	0.10
Japan.....	356,275	157,612	49,200	0.72	0.32
Netherlands.....	50,200	15,700	4,393	1.14	0.36
Norway.....	7,357	2,958	1,462	0.50	0.20
Sweden.....	26,744	7,395	3,734	0.72	0.20
Switzerland.....	10,954 <sup>1</sup>	10,954	2,705	..	0.40
United Kingdom <sup>2</sup> .....	50,350 <sup>1</sup>	..	25,064	..	..
United States.....	537,273 <sup>1</sup>	537,273	74,372	..	0.72
EEC.....	519,212	..	..	..	..

<sup>1</sup> Scientists and engineers only.

<sup>2</sup> 1968.



## CHAPTER IX.—CRIME AND DELINQUENCY\*

### CONSPECTUS

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*The interpretation of the symbols used in the tables throughout the Year Book will be found on p. vii of this volume.*

### Section 1.—Canadian Criminal Law and Procedure†

The system under which justice is administered in a State is never rigid. To have it so would be neither expedient nor indeed possible. A judicial system must grow and adapt itself to the requirements of the people, and the exact limits of the powers of different legislative bodies require continued definition.

The criminal law of Canada has as its foundation the criminal common law of England built up through the ages and consisting first of customs and usages and later expanded by principles enunciated by generations of judges. There is no statutory declaration of the introduction of English criminal law into those parts of Canada that are now the Provinces of New Brunswick, Nova Scotia and Prince Edward Island. Its introduction there depends upon a principle of the common law itself by which English law was declared to be in force in uninhabited territory discovered and planted by British subjects, except in so far as local conditions made it inapplicable. The same may be said of Newfoundland although the colony dealt with the subject in a statute of 1837. In Quebec, its reception depends upon a Royal Proclamation of 1763 and the Quebec Act of 1774. In each of the other provinces and in the Yukon and Northwest Territories, the matter has been dealt with by statute.

The judicial systems of the provinces as they exist today are based upon the British North America Act of 1867. Sect. 91 of the Act provides that "The exclusive legislative authority of the Parliament of Canada extends to . . . the criminal law, except the constitution of courts of criminal jurisdiction but including the procedure in criminal matters". By Sect. 92 (14), the legislature of the province exclusively may make laws in relation to "the administration of justice in the province, including the constitution, maintenance and organization of provincial courts, both of civil and criminal jurisdiction and including procedure in civil matters in its courts". The Parliament of Canada may, however

\* Except as otherwise credited, this Chapter has been revised in the Judicial Division, Statistics Canada.

† Revised by the Criminal Law Section, Department of Justice, Ottawa.

(Sect. 101), establish any additional courts for the better administration of the laws of Canada. It should be noted that the Statute of Westminster, 1931 effected important changes, particularly by abrogating the Colonial Laws Validity Act, 1865 (Br.) and confirming the right of a dominion to make laws having extraterritorial operation. Particulars of the federal judiciary are given in Chapter II, pp. 108-110 and of the provincial and territorial judiciaries in the 1970-71 Year Book at pp. 99-106.

At the time of Confederation each of the colonies affected had its own body of statutes relating to the criminal law. In 1869, in an endeavour to assimilate them into a uniform system applicable throughout Canada, Parliament passed a series of Acts, some of which dealt with offences of special kinds and others with procedure. Most notable of the latter was the Criminal Procedure Act, but other Acts provided for the speedy trial or summary trial of indictable offences, the powers and jurisdiction of justices of the peace in summary conviction matters and otherwise, and the procedure in respect of juvenile offenders.

Codification of the criminal law through a Criminal Code Bill founded on the English draft code of 1878, Stephen's *Digest of Criminal Law*, Burbidge's *Digest of the Canadian Criminal Law*, and the relevant Canadian statutes was brought about by the Minister of Justice, Sir John Thompson, in 1892. This Bill became the Criminal Code of Canada and came into force on July 1, 1893. It must be remembered, however, that the Criminal Code was not exhaustive of the criminal law. It was still necessary to refer to English law in certain matters of procedure and it was still possible to prosecute for offences at common law. Moreover, Parliament has declared offences against certain other Acts, e.g., the Narcotic Control Act, to be criminal offences and the same was done in the Defence of Canada Regulations and the Wartime Prices and Trade Board Regulations (neither now in force) promulgated under the authority of the War Measures Act.

It is often difficult to distinguish between 'law' and 'procedure'. Procedure may be interpreted to relate simply to the organic working of the courts but, in a wider sense, it may also affect the rights or alter the legal relations arising out of any given state of facts. For present purposes it will be useful to note that writers on jurisprudence describe law as being substantive or adjective. "Substantive law is concerned with the ends which the administration of justice seeks; procedural (adjective) law deals with the means and instruments by which these ends are to be obtained."\* With reference to the criminal law, the former may be taken to include the provisions concerning criminal responsibility, the definition of 'offences' and the punishment for those offences, and the latter to include provisions for enforcement, e.g., powers to search and to arrest, for the modes of trial and for the proof of facts. Broadly speaking, the Criminal Code observes the distinction although it might appear that the provisions for preventive detention of habitual criminals and dangerous sexual offenders partake of the nature of both classes.

An examination and study of the Criminal Code was authorized by Order in Council dated Feb. 3, 1949, and the Commission assigned the task of revising the Code presented its report with a draft Bill in February 1952. After coming before successive sessions of Parliament it was finally enacted on June 15, 1954 and the new Criminal Code (RSC 1970, c. C-34) came into effect on Apr. 1, 1955. Since the new Code came into force several amendments have been made, for the most part in relation to procedure. Among the most notable of these, as well in point of procedure as of substance, are: an amendment in 1956 providing that motions for leave to appeal to the Supreme Court of Canada in criminal cases should be heard by a quorum (at least five) of judges of that Court instead of by a single judge; amendments effected in 1959, providing a statutory extension of the definition of "obscenity" and making provision for seizure and condemnation of offending material without a charge necessarily being laid against any person; extensive amendments relating

\* Salmond on *Jurisprudence*, 7th Edition, p. 496.

to the allowing of time for payment of fines; amendments dealing with offences committed in aircraft in flight over the high seas; an amendment forbidding the publication in a newspaper or broadcast of a report that any admission or confession was tendered in evidence at a preliminary inquiry or a report of the nature of such admission or confession unless the accused has been discharged or, if the accused has been committed for trial, the trial has ended.

The Parole Act (RSC 1970, c. P-2), brought into force on Feb. 15, 1959, revises the parole system and provides for the establishment of a National Parole Board (see pp. 507-509).

It is most important to note that in 1960 (SC 1960, c. 44) Parliament enacted what is known as the Canadian Bill of Rights. Although the Act sets out further details, its general scope appears in Sect. 1, which reads as follows:—

"1. It is hereby recognized and declared that in Canada there have existed and shall continue to exist without discrimination by reason of race, national origin, colour, religion or sex, the following human rights and fundamental freedoms, namely,

- (a) the right of the individual to life, liberty, security of the person and enjoyment of property, and the right not to be deprived thereof except by due process of law;
- (b) the right of the individual to equality before the law and the protection of the law;
- (c) freedom of religion;
- (d) freedom of speech;
- (e) freedom of assembly and association; and
- (f) freedom of the press."

Although the Bill of Rights has been invoked on various occasions, the courts have not held it to affect the operation of the Criminal Code.

In 1961, the offence of murder was divided into capital and non-capital, the death penalty was abolished in relation to the offence of non-capital murder, and the term *criminal sexual psychopath* was dropped and the term *dangerous sexual offender* substituted; in 1965, provision was made for the right to appeal in *habeas corpus* proceedings.

The concept of "non-capital murder" was introduced into Canadian criminal law in 1961. At that time, capital murder was defined to include, for example, planned and deliberate murder, murder in the course of certain violent acts and murder of peace officers and prison officers. Life imprisonment was substituted for the death penalty in cases where the accused was convicted of non-capital murder. In 1966, the House of Commons, on a free vote, rejected a Bill under which the death penalty for murder would have been completely abolished but in 1967 an Act was passed under which the definition of capital murder is restricted to the murder of peace officers or prison officers. This Act was brought into force on Dec. 29, 1967, and will continue in force for a period of five years from that day. The Act will then expire unless before the end of the five-year period Parliament by a joint resolution of both Houses directs that it shall continue in force. If the Act is not continued in force before the expiry of the five-year period, the broader definition of capital murder introduced in 1961 will again come into operation. It should be noted that the law contains a provision whereby a person in respect of whom sentence of death has been commuted or a person who has been sentenced to life imprisonment for capital murder shall not be released without the prior approval of the Governor in Council.

The most comprehensive amendments to the Criminal Code since it came into force on Apr. 1, 1955 are contained in the Criminal Law Amendment Act which was assented to on June 27, 1969 and, with certain exceptions, came into force on Aug. 26, 1969. Among the changes are amendments relating to gaming and lotteries, "drinking and driving", homosexual acts and therapeutic abortion.



The provisions with respect to lotteries, which came into force on Jan. 1, 1970, make it lawful for the Federal Government to conduct a lottery and for a provincial government to pass legislation enabling it to conduct a lottery either alone or in conjunction with one or more other provincial governments. Provincial authorities may issue licences under which charitable and religious organizations may be authorized to conduct lotteries and games and under which agricultural fairs and exhibitions are no longer restricted to lotteries and games conducted on the exhibition grounds.

Under the amendment, a person is guilty of an offence if he drives a motor vehicle while the proportion of alcohol in his blood exceeds 80 milligrammes of alcohol in 100 millilitres of blood. It is compulsory for a driver to take a blood test when required to do so by a peace officer who has reasonable and probable grounds to believe that the person's ability to drive is impaired and it is an offence for a person to fail or refuse without reasonable excuse to take a blood test when so required. Where such blood test is taken within two hours of the alleged offence and the various conditions set out in the legislation relating to the taking of the test are complied with, the result of the test is *prima facie* evidence of the proportion of alcohol in the driver's blood. This amendment came into force on Dec. 1, 1969, with the exception of those provisions dealing with the alcohol breathalyzer legislation which refer to the specimen of breath to be given to the accused in an approved container for his use at the time the breath sample is taken. The proclamation of these provisions awaits the development of a suitable container.

The amendment contains provisions whereby therapeutic abortion is not unlawful where the operation is carried out after the therapeutic abortion committee of an accredited hospital has certified that the continuation of the pregnancy would or would be likely to endanger the life or health of the female. The operation may be performed only by a duly qualified medical practitioner and only in an accredited hospital or a hospital approved for the purpose by the Minister of Health of a province, who is also entitled to information relating to the issue of a certificate and to the operation.

The amendment removes from the ambit of the criminal law homosexual acts committed in private between two consenting adults.

As noted earlier in this Section, an amendment was made to the Criminal Code in 1959 restricting the publication of an admission or confession at a preliminary inquiry. Under the new amendment, provision is made whereby, on the application of the accused, the magistrate or justice holding a preliminary inquiry may make an order forbidding publication of *any* of the evidence until the accused has been discharged or, if he has been committed for trial, the trial has ended. Apart from such an order, the prohibition against publishing an admission or confession remains.

Previously, where there was reason to believe that the accused person was unfit on account of insanity to stand trial, the issue of his fitness to stand trial was decided as soon as it arose. If the court decided that the accused was not fit to stand trial, he was detained in custody at the pleasure of the Lieutenant-Governor. As the merits of the case against him were not tried, it was possible for an innocent person to be so detained. Under the amendments, the court has the power to postpone dealing with the issue of fitness to stand trial until after the prosecutor has presented his evidence. If the prosecutor's evidence is not sufficiently strong to make out a case, the accused may be acquitted and set free. If he requires treatment for a mental condition, he may be dealt with under the applicable provincial mental health legislation instead of under the Criminal Code. In addition, in order to safeguard the rights of those persons who are found unfit to stand trial and therefore detained in custody, the Lieutenant-Governor of the province is authorized to appoint a board to review at least every six months the case of every person so detained, also to review at least every six months the case of every person who is held in custody in the province following an acquittal on account of insanity at the time the offence was committed.

In regard to sentence, the amendment contains provisions enabling courts to make more liberal use of suspended sentences, with or without probation. The amendments remove the previous restriction which prevented the court from suspending the passing of sentence when the offender had more than one previous conviction; enable probation orders to be transferred from one province to another; enable the court to make a probation order in addition to a sentence of imprisonment not exceeding two years; and make it a substantive offence, punishable on summary conviction, for a person on probation wilfully to refuse to comply with the probation order.

In 1971, Parliament passed the Bail Reform Act. When proclaimed in force, this Act will change the Criminal Code by restricting police powers of arrest for minor offences and requiring the police, as a general rule, to release persons arrested for minor or less serious offences as soon as possible. In addition, a justice will be bound to issue a summons unless the public interest requires a warrant of arrest. Save in very exceptional cases, "cash bail" will be abolished and as a general rule a person charged with an offence will be released simply on his written undertaking to attend court.

## Section 2.—Adult Offenders and Convictions

Offences may be classified under two headings, "indictable offences" and "offences punishable on summary conviction". Indictable offences are grouped in two main categories: (1) offences that violate the Criminal Code and (2) offences against federal statutes. These include the more serious crimes. Offences punishable on summary conviction—those not expressly made indictable—include offences against the Criminal Code, provincial statutes and municipal by-laws. It is debatable to what extent some summary conviction offences are of a criminal nature and whether their increase indicates an increase in crime. Many are breaches of municipal by-laws and contrary to public safety, health and comfort, as, for example, parking violations or practising trades without licence but, on the other hand, summary conviction offences may include such serious charges as assault and contributing to juvenile delinquency.

The following Subsection 1 deals with adults convicted of indictable offences, Subsection 2 with young adult offenders convicted of indictable offences, Subsection 3 with convictions for summary conviction offences and Subsection 4 with appeals.

### Subsection 1.—Adults Convicted of Indictable Offences

Statistics of indictable crimes are based on persons, so that it may be possible to evaluate the population engaged in prohibited activities and to help in the treatment of anti-social behaviour in terms of subject-centred action. In the present counting system, although individuals may be charged with more than one offence, only one offence is tabulated for each person. This offence is selected according to the following criteria: (1) if the person were tried on several charges, the offence selected is that for which proceedings were carried to the farthest stage—conviction and sentence; (2) if there were several convictions, the offence selected is that for which the heaviest punishment was awarded; (3) if the final result of proceedings on two or more charges were the same, the offence selected is the more serious one, as measured by the maximum penalty allowed by the law; (4) if a person were prosecuted for one offence and convicted of another—for example, charged with murder and convicted of manslaughter—the offence selected is the one for which the person was convicted.

In 1968 there were 57,494 adults charged with 94,838 indictable offences, of whom 49,963 were found guilty of 82,312 offences. In the previous year there were 51,388 adults charged with 86,689 indictable offences, of whom 45,703 were found guilty of 76,681 offences.

**1. —Persons Charged and Persons Convicted of Indictable Offences, with Ratio per 100,000 Population 16 Years of Age or Over, by Province, 1967 and 1968**

Province or Territory	Persons Charged		Persons Convicted				Persons Convicted per 100,000 Population 16 Years of Age or Over	
	1967	1968	1967		1968		1967	1968
	No.	No.	No.	p.c.	No.	p.c.	No.	No.
Newfoundland.....	541	684	531	98.1	666	97.4	184	225
Prince Edward Island.....	129	160	120	93.0	156	97.5	173	220
Nova Scotia.....	1,697	1,836	1,516	89.3	1,652	90.0	309	332
New Brunswick.....	1,385	1,709	1,334	96.3	1,657	97.0	345	420
Quebec <sup>1</sup> .....	10,082	13,455	9,125	90.5	11,354	84.4	239	291
Ontario.....	18,441	20,206	16,025	86.9	17,506	86.6	335	355
Manitoba.....	2,935	2,771	2,689	91.6	2,434	87.8	419	373
Saskatchewan.....	2,346	2,725	2,156	91.9	2,514	92.3	347	400
Alberta.....	5,134	5,956	4,735	92.2	5,357	89.9	499	547
British Columbia.....	8,474	7,774	7,267	85.8	6,464	83.1	548	469
Yukon and Northwest Territories.....	224	218	205	91.5	203	93.1	820	775
<b>Canada.....</b>	<b>51,388</b>	<b>57,494</b>	<b>45,703</b>	<b>88.9</b>	<b>49,963</b>	<b>86.9</b>	<b>341</b>	<b>363</b>

<sup>1</sup> Excludes municipal court cases.

Table 2 classifies indictable offences by type of offence for 1967 and 1968. Class I covers offences against the person and in 1968 there were 6,627 males and 303 females convicted in this category, mostly for assaults of various kinds. Classes II to IV deal with offences against property. Thefts predominate among the offences in these classes, and breaking and entering, extortion and robbery—serious crimes which involve acts of violence—are the next most numerous. Class V deals with offences relating to currency and Class VI with miscellaneous offences; among the latter, the most numerous convictions are for offences connected with gaming, betting and lotteries. In 1968 there were 1,138 men and 180 women convicted under federal statutes of whom 1,087 men and 175 women were offenders under the Narcotic Control Act.

**2.—Persons Charged and Convicted of Indictable Offences, by Class of Offence, 1967 and 1968**

Class of Offence	1967			1968		
	Persons Charged	Persons Convicted		Persons Charged	Persons Convicted	
		M.	F.		M.	F.
	No.	No.	No.	No.	No.	No.
<b>Criminal Code</b>						
<b>Class I.—Offences against the Person.....</b>	<b>7,957</b>	<b>6,217</b>	<b>293</b>	<b>8,655</b>	<b>6,627</b>	<b>303</b>
Abduction and kidnapping.....	63	46	—	88	51	4
Assault, causing bodily harm, common, on police and obstruction.....	5,476	4,367	220	5,881	4,673	223
Offences against females <sup>1</sup> .....	1,029	742	18	1,131	740	15
Causing death by criminal negligence, <sup>2</sup> manslaughter and murder.....	248	158	10	247	154	11
Attempted murder, causing bodily harm and danger.....	292	192	24	383	251	22
Criminal negligence in operation of motor vehicle.....	23	22	—	175	140	4
Duties tending to preservation of life.....	14	9	1	63	28	3
Other offences against the person.....	812	681	20	687	590	21

For footnotes, see end of table, p. 490.



## 2.—Persons Charged and Convicted of Indictable Offences, by Class of Offence, 1967 and 1968—concluded

Class of Offence	1967			1968		
	Persons Charged	Persons Convicted		Persons Charged	Persons Convicted	
		M.	F.		M.	F.
	No.	No.	No.	No.	No.	No.
<b>Criminal Code—concluded</b>						
<b>Class II.—Offences against Property with Violence</b> .....	<b>8,955</b>	<b>8,012</b>	<b>167</b>	<b>10,244</b>	<b>8,898</b>	<b>153</b>
Breaking and entering a place, extortion and robbery.....	8,955	8,012	167	10,244	8,898	153
<b>Class III.—Offences against Property without Violence</b> .....	<b>26,187</b>	<b>19,244</b>	<b>4,615</b>	<b>28,393</b>	<b>20,466</b>	<b>4,940</b>
Fraud and false pretences.....	2,980	2,260	365	3,422	2,513	409
Having in possession.....	3,003	2,467	129	3,643	2,926	163
Theft.....	20,204	14,517	4,121	21,328	15,027	4,368
<b>Class IV.—Malicious Offences against Property</b> .....	<b>1,394</b>	<b>1,167</b>	<b>53</b>	<b>1,600</b>	<b>1,306</b>	<b>62</b>
Arson and other fires.....	141	106	9	145	101	8
Other interference with property.....	1,253	1,061	44	1,455	1,205	54
<b>Class V.—Forgery and Other Offences Relating to Currency</b> .....	<b>1,335</b>	<b>1,059</b>	<b>167</b>	<b>1,670</b>	<b>1,297</b>	<b>199</b>
Forgery and uttering forged documents.....	1,204	963	156	1,491	1,181	180
Offences relating to currency.....	131	96	11	179	116	19
<b>Class VI.—Other Offences</b> .....	<b>4,277</b>	<b>3,420</b>	<b>326</b>	<b>5,155</b>	<b>4,044</b>	<b>350</b>
Driving while ability to drive is impaired.....	210	168	2	702	632	10
Driving while intoxicated.....	7	6	—	8	8	—
Gaming, betting and lotteries.....	663	586	43	759	612	94
Keeping bawdy houses.....	155	26	107	104	21	60
Various other offences.....	3,242	2,634	174	3,582	2,771	186
<b>Totals, Criminal Code</b> .....	<b>50,105</b>	<b>39,119</b>	<b>5,621</b>	<b>55,717</b>	<b>42,638</b>	<b>6,007</b>
<b>Federal Statutes<sup>1</sup></b>						
Narcotic Control Act.....	1,234	730	190	1,713	1,087	175
Other statutes.....	49	38	5	64	51	5
<b>Totals, Federal Statutes</b> .....	<b>1,283</b>	<b>768</b>	<b>195</b>	<b>1,777</b>	<b>1,138</b>	<b>180</b>
<b>Grand Totals</b> .....	<b>51,388</b>	<b>39,887</b>	<b>5,816</b>	<b>57,494</b>	<b>43,776</b>	<b>6,187</b>

<sup>1</sup> Includes abortion, indecent assault on female, sexual intercourse and attempt, incest, procuring, rape, attempted rape and seduction.    <sup>2</sup> Includes causing death in the operation of a motor vehicle or otherwise.    <sup>3</sup> Excludes Quebec.

## 3.—Persons Convicted of Indictable Offences classified by Marital Status, Sex and Age, 1967 and 1968

Item	1967	1968	Item	1967	1968
	No.	No.		No.	No.
<b>Total Persons Convicted</b> .....	<b>45,703</b>	<b>49,963</b>	<b>SEX</b>		
			Male.....	39,887	43,776
			Female.....	5,816	6,187
<b>MARITAL STATUS<sup>1</sup></b>			<b>AGE</b>		
Single.....	26,602	21,848	16 to 19 years.....	14,683	12,746
Married.....	10,985	9,244	20 to 24 years.....	9,734	12,402
Widowed.....	401	345	25 to 44 years.....	13,154	14,907
Divorced.....	452	466	45 years or over.....	3,738	4,310
Separated.....	1,713	1,888	Not given.....	4,394	5,598
Not given.....	5,550	4,818			

<sup>1</sup> Excludes Quebec in 1968.

**Female Offenders.**—There were 6,187 female offenders convicted of indictable offences in 1968 compared with 5,816 in 1967. Of these offenders, Ontario accounted for 2,484, Quebec for 1,279 and British Columbia for 908. The ratio of female offenders convicted to total persons convicted moved slightly downward from 12.7 p.c. in 1967 to 12.4 p.c. in 1968, ranging from 5.1 p.c. in Prince Edward Island to 14.2 p.c. in Ontario.

**4.—Females Convicted of Indictable Offences, by Province, 1967 and 1968**

Province or Territory	Females Convicted		Females Convicted to Total Persons Convicted	
	1967	1968	1967	1968
	No.	No.	p.c.	p.c.
Newfoundland.....	35	42	6.6	6.3
Prince Edward Island.....	3	8	2.5	5.1
Nova Scotia.....	124	133	8.2	8.1
New Brunswick.....	102	171	7.6	10.3
Quebec.....	1,055	1,279	11.6	11.3
Ontario.....	2,368	2,484	14.8	14.2
Manitoba.....	335	290	12.5	11.9
Saskatchewan.....	202	228	9.4	9.1
Alberta.....	524	630	14.0	11.8
British Columbia.....	1,052	908	14.5	14.0
Yukon and Northwest Territories.....	16	14	7.8	6.9
<b>Canada.....</b>	<b>5,816</b>	<b>6,187</b>	<b>12.7</b>	<b>12.4</b>

**Multiple Convictions.**—Table 5 shows the number of persons having more than one conviction at a court appearance for the years 1964 to 1968. Multiple convictions occur most often in cases of forgery and uttering, false pretences, theft, having in possession, and breaking and entering.

**5.—Persons Convicted of More than One Offence at the Time of Trial compared with Persons Convicted of One Offence, 1964-68**

Item	1964	1965	1966	1967	1968 <sup>1</sup>
	No.	No.	No.	No.	No.
Persons Convicted of—					
2 offences.....	6,085	5,754	6,032	6,023	5,071
3 offences.....	2,094	2,063	2,071	2,138	1,701
4 offences.....	1,052	1,045	1,016	1,000	800
5 offences.....	587	564	651	597	484
6 offences.....	412	399	425	347	314
7 offences.....	258	270	291	227	237
8 offences.....	209	213	203	182	150
9 offences.....	151	156	135	141	115
10 offences.....	121	138	116	118	97
11 to 20 offences.....	476	440	467	396	378
21 offences or over.....	151	158	153	110	104
<b>Totals, Convicted of More than One Offence.....</b>	<b>11,596</b>	<b>11,200</b>	<b>11,565</b>	<b>11,279</b>	<b>9,451</b>
<b>Totals, Convicted of One Offence.....</b>	<b>30,501</b>	<b>30,632</b>	<b>34,105</b>	<b>34,424</b>	<b>29,158</b>
<b>Grand Totals.....</b>	<b>42,097</b>	<b>41,832</b>	<b>45,670</b>	<b>45,703</b>	<b>38,609</b>

<sup>1</sup> Excludes Quebec.

**Disposition of Cases and Previous Convictions.**—As shown in Table 1, p. 489, of all suspects before the courts for indictable offences in 1968, 86.9 p.c. were adjudged guilty. There was, however, considerable variation among the provinces in this respect, the proportion ranging from 83.1 p.c. in British Columbia to 97.5 p.c. in Prince Edward Island.

**6.—Persons Charged with Indictable Offences, Disposition of Cases and Previous Convictions, 1967 and 1968**

Item	1967	1968 <sup>1</sup>	Item	1967	1968 <sup>1</sup>
	No.	No.		No.	No.
Charged.....	51,388	44,039	Males convicted.....	39,887	33,701
Acquitted.....	4,939	4,628	Females convicted.....	5,816	4,908
Disagreement of jury.....	7	8	First conviction.....	12,112	10,155
Stay of proceedings.....	638	689	Second conviction.....	5,563	4,938
No Bill.....	49	64	Reiterated convictions.....	12,695	12,019
Detained because of insanity.....	52	41	Not given.....	15,333	11,497

<sup>1</sup> Excludes Quebec.

**Sentences, Method of Trial and Court Proceedings.**—Table 7 summarizes the first court sentences given for indictable offences, Table 8 shows the method of trial and disposition of cases, and Table 9 shows persons charged and convicted of indictable offences according to trial court.

Two kinds of sentences maintain for a certain period of time a relationship between the person dealt with by the court and the legal institutions of a community—probation and commitment to an institution. There are several types of institutions to which a person can be committed, such as penitentiaries, reformatories, gaols and industrial farms. Theoretically, every institution has a specific purpose which is supposed to be taken into account when arriving at a legal decision. In practice, however, the availability of an institution in a given community is a factor in determining the decision rendered by the court.

**7.—First Court Sentences Given for Indictable Offences, by Province, 1967 and 1968**

Sentence	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T. and N.W.T.	Canada
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
<b>1967</b>												
Option of fine.....	158	49	448	297	2,695	4,692	589	536	1,581	1,547	44	12,636
Gaol—												
Under one year.....	142	35	388	420	2,328	3,280	611	730	1,326	2,124	92	11,476
One year or over.....	20	1	16	41	257	336	140	125	539	611	6	2,092
Reformatory and Training School.....	—	—	1	5	102	1,847	56	—	1	113	—	2,125
Penitentiary—												
Under two years.....	21	—	1	11	2	137	16	8	18	16	—	230
Two years and under five.....	30	16	171	109	469	592	140	111	273	396	6	2,313
Five years and under ten.....	—	—	11	7	59	96	9	12	42	69	—	305
Ten years and under fourteen.....	—	—	—	1	14	12	3	1	4	14	—	49
Fourteen years or over.....	—	—	—	1	13	12	—	—	—	5	—	31
Life.....	1	—	—	—	7	12	6	2	6	6	—	40
Preventive.....	—	—	—	—	1	1	1	—	2	8	—	13
Death.....	—	—	—	—	4	1	—	—	—	2	—	7
Suspended sentence without probation.....	80	8	161	170	1,555	1,096	582	363	592	1,185	17	5,809
Suspended sentence with probation.....	79	11	319	272	1,619	3,911	536	268	351	1,171	40	8,577
<b>Totals.....</b>	<b>531</b>	<b>120</b>	<b>1,516</b>	<b>1,334</b>	<b>9,125</b>	<b>16,025</b>	<b>2,689</b>	<b>2,156</b>	<b>4,735</b>	<b>7,267</b>	<b>205</b>	<b>45,703</b>



### 7.—First Court Sentences Given for Indictable Offences, by Province, 1967 and 1968 —concluded

Sentence	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T. and N.W.T.	Canada
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
<b>1968</b>												
Option of fine.....	193	71	526	463	1	4,989	444	639	1,710	1,469	54	10,558
Gaol—												
Under one year.....	225	31	382	514	1	3,349	757	770	1,597	2,283	85	9,993
One year or over.....	50	1	10	61	1	330	169	144	534	571	12	1,882
Reformatory and Training School.....	—	—	4	2	1	2,042	—	—	3	1	—	2,052
Penitentiary—												
Under two years.....	4	2	3	3	1	143	4	6	7	14	—	186
Two years and under five.	37	12	146	91	1	677	137	116	267	333	3	1,819
Five years and under ten.	—	—	6	5	1	127	19	16	38	68	1	280
Ten years and under four- teen.....	—	—	1	1	1	38	6	6	5	21	1	79
Fourteen years or over....	1	—	—	1	1	10	1	—	2	4	—	19
Life.....	1	—	2	—	1	12	2	—	1	7	—	25
Preventive.....	—	—	—	—	1	—	1	—	5	2	—	8
Death.....	—	—	—	—	1	—	—	—	1	—	—	1
Suspended sentence without probation.....	106	16	91	198	1	1,410	703	354	776	1,195	11	4,860
Suspended sentence with proba- tion.....	49	23	481	318	1	4,379	191	463	411	496	36	6,847
<b>Totals.....</b>	<b>666</b>	<b>156</b>	<b>1,652</b>	<b>1,657</b>	<b>1</b>	<b>17,506</b>	<b>2,434</b>	<b>2,514</b>	<b>5,357</b>	<b>6,464</b>	<b>203</b>	<b>38,609</b>

<sup>1</sup> Figures for Quebec are not available; the unit of count is not comparable with that of other provinces.

### 8.—Method of Trial of Persons Charged with Indictable Offences, showing Disposition of Cases, by Sex and by Province, 1968

Method of Trial and Sex	Nfld.	P.E.I.	N.S.	N.B.	Que. <sup>1</sup>	Ont.	Man.	Sask.	Alta.	B.C.	Y.T. and N.W.T.	Canada
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
<b>By Judge and Jury—</b>												
Convicted.....M.	9	—	21	6	148	351	40	48	12	178	8	821
F.	—	—	2	—	13	18	3	—	1	10	—	47
Acquitted.....M.	3	—	5	2	27	149	12	16	6	49	4	273
F.	—	—	—	—	—	19	—	1	3	7	—	30
Detained because of insanity.....M.	—	—	1	—	—	3	—	3	—	2	—	9
F.	—	—	—	—	—	3	—	—	1	—	—	4
Disagreement of jury....M.	—	—	—	—	—	4	—	—	—	3	—	7
F.	—	—	—	—	—	1	—	—	—	—	—	1
Stay of proceedings.....M.	—	—	—	—	—	3	1	—	1	10	—	16
F.	—	—	—	—	—	—	—	—	—	—	—	—
No Bill.....M.	—	—	—	—	—	54	—	—	—	—	—	54
F.	—	—	—	—	—	9	—	—	—	—	—	9
<b>By a Judge without Jury—</b>												
Convicted.....M.	5	3	84	4	955	788	60	112	409	154	17	2,591
F.	—	—	—	—	54	56	2	4	24	20	—	160
Acquitted.....M.	—	—	17	—	283	230	25	27	131	80	4	797
F.	—	—	—	—	26	31	—	3	11	7	—	78
Detained because of insanity.....M.	—	—	—	—	6	1	—	—	—	—	—	7
F.	—	—	—	—	1	1	—	—	—	—	—	2
Stay of proceedings.....M.	—	—	1	—	—	3	2	6	20	15	1	48
F.	—	—	—	—	—	—	—	1	2	3	—	6

<sup>1</sup> Excludes municipal court cases.

**8.—Method of Trial of Persons Charged with Indictable Offences, showing Disposition of Cases, by Sex and by Province, 1968—concluded**

Method of Trial and Sex	Nfld.	P.E.I.	N.S.	N.B.	Que. <sup>1</sup>	Ont.	Man.	Sask.	Alta.	B.C.	Y.T. and N.W.T.	Canada
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
<b>By a Magistrate with Consent—</b>												
Convicted.....M.	461	81	716	844	4,810	8,539	1,176	1,157	2,083	2,954	85	22,906
F.	15	2	26	48	888	656	80	58	127	280	4	2,184
Acquitted.....M.	10	2	86	24	605	1,076	55	54	177	398	4	2,491
F.	—	—	4	1	94	114	8	5	21	55	—	302
Detained because of insanity.....M.	4	—	1	—	—	8	1	—	1	7	—	22
F.	—	—	—	—	—	—	—	—	1	—	—	1
Stay of proceedings.....M.	—	—	—	—	—	2	118	1	2	191	—	314
F.	—	—	—	—	—	1	25	—	—	39	—	65
<b>By a Magistrate, Absolute Jurisdiction—</b>												
Convicted.....M.	149	64	698	632	4,521	5,344	868	969	2,223	2,270	79	17,817
F.	27	6	105	123	780	1,754	205	166	478	598	10	4,252
Acquitted.....M.	—	2	64	22	215	827	16	81	184	222	2	1,635
F.	—	—	5	3	27	160	7	11	38	48	—	299
Detained because of insanity.....M.	1	—	—	—	2	1	—	1	—	—	—	5
F.	—	—	—	—	—	—	—	—	—	—	—	—
Stay of proceedings.....M.	—	—	—	—	—	—	57	—	—	136	—	193
F.	—	—	—	—	—	—	10	—	—	38	—	48
<b>Totals, Persons Charged.</b>	<b>684</b>	<b>160</b>	<b>1,836</b>	<b>1,709</b>	<b>13,455</b>	<b>20,206</b>	<b>2,771</b>	<b>2,725</b>	<b>5,956</b>	<b>7,774</b>	<b>218</b>	<b>57,494</b>
<b>Totals, Persons Convicted.</b>	<b>666</b>	<b>156</b>	<b>1,652</b>	<b>1,657</b>	<b>11,354</b>	<b>17,506</b>	<b>2,434</b>	<b>2,514</b>	<b>5,357</b>	<b>6,464</b>	<b>203</b>	<b>49,963</b>

<sup>1</sup> Excludes municipal court cases.

**9.—Persons Charged and Convicted of Indictable Offences according to Trial Court, by Province, 1967 and 1968**

Province and Item	1967					1968				
	Persons Charged and Convicted by—					Persons Charged and Convicted by—				
	Police Magistrate and Municipal Court	Juvenile or Family Court	County Court	Higher Court	Total	Police Magistrate and Municipal Court	Juvenile or Family Court	County Court	Higher Court	Total
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland—										
Charged.....	501	32	3	5	541	664	3	5	12	684
Convicted.....	494	32	1	4	531	649	3	5	9	666
Prince Edward Island—										
Charged.....	113	—	15	1	129	157	—	3	—	160
Convicted.....	108	—	12	—	120	153	—	3	—	156
Nova Scotia—										
Charged.....	1,580	28	57	32	1,697	1,650	55	102	29	1,836
Convicted.....	1,419	28	47	22	1,516	1,491	54	84	23	1,652

**9.—Persons Charged and Convicted of Indictable Offences according to Trial Court, by Province, 1967 and 1968—concluded**

Province or Territory and Item	1967					1968				
	Persons Charged and Convicted by—					Persons Charged and Convicted by—				
	Police Magistrate and Municipal Court	Juvenile or Family Court	County Court	Higher Court	Total	Police Magistrate and Municipal Court	Juvenile or Family Court	County Court	Higher Court	Total
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
New Brunswick—										
Charged.....	1,368	1	7	9	1,385	1,691	6	4	8	1,709
Convicted.....	1,323	1	5	5	1,334	1,641	6	4	6	1,657
Quebec— <sup>1</sup>										
Charged.....	5,713	2,034	2,223	112	10,082	12,432	2	2	1,023	13,455
Convicted.....	5,210	2,017	1,809	89	9,125	10,491	2	2	863	11,354
Ontario—										
Charged.....	17,100	79	1,108	154	18,441	18,396	86	1,516	208	20,206
Convicted.....	15,063	72	793	97	16,025	16,219	74	1,112	101	17,506
Manitoba—										
Charged.....	2,246	540	91	58	2,935	2,612	14	89	56	2,771
Convicted.....	2,081	511	57	40	2,689	2,317	12	62	43	2,434
Saskatchewan—										
Charged.....	2,144	5	149	48	2,346	2,499	4	155	67	2,725
Convicted.....	2,012	4	107	33	2,156	2,346	4	117	47	2,514
Alberta—										
Charged.....	4,595	49	75	415	5,134	5,299	36	135	486	5,956
Convicted.....	4,346	49	53	287	4,735	4,881	30	93	353	5,357
British Columbia—										
Charged.....	6,879	1,055	371	169	8,474	7,207	29	398	140	7,774
Convicted.....	5,895	1,009	252	111	7,267	6,076	26	266	96	6,464
Yukon and Northwest Territories—										
Charged.....	211	—	—	13	224	184	—	22	12	218
Convicted.....	195	—	—	10	205	178	—	17	8	203
Canada—										
Charged.....	42,450	3,823	4,099	1,016	51,388	52,791	233	2,429	2,041	57,494
Convicted.....	38,146	3,723	3,136	698	45,703	46,442	209	1,763	1,549	49,963

<sup>1</sup> Excludes municipal court cases.

<sup>2</sup> Included in magistrates court.

**Subsection 2.—Young Adult Offenders (16-24 Years)  
Convicted of Indictable Offences**

Attention is focused on the needs of the young adult offenders of from 16-24 years of age who constitute a promising field for modern reception and diagnostic facilities equipped with educational, trade training and other formative disciplines. The young men and women in this age group accounted for 23.4 p.c. of the total population 16 years of age or over in 1968 but they formed over half of the criminal population committing indictable offences. The group includes some of the most daring offenders who already may be experienced criminals as well as first offenders likely to be turned from crime by further education and training. There were 25,148 young adult offenders in 1968, an increase of 3.0 p.c. over the previous year.



## 10.—Young Adult Offenders, by Age Group, Sex and Province, 1967 and 1968

Year, Age Group and Sex	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T. and N.W.T.	Canada
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
<b>1967</b>												
16 - 17 years.....M.	98	17	283	243	1,845	2,298	476	319	622	1,100	24	7,325
F.	3	—	16	16	158	218	58	24	52	121	1	667
18 - 19 ".....M.	90	24	271	224	991	2,278	372	320	700	870	12	6,152
F.	6	—	18	16	69	227	48	17	60	77	1	539
20 - 24 ".....M.	126	32	355	300	1,614	2,867	518	459	996	1,425	48	8,740
F.	7	—	23	18	154	381	60	30	109	205	7	994
<b>Totals, 1967.....</b>	<b>330</b>	<b>73</b>	<b>966</b>	<b>817</b>	<b>4,831</b>	<b>8,269</b>	<b>1,532</b>	<b>1,169</b>	<b>2,539</b>	<b>3,798</b>	<b>93</b>	<b>24,417</b>
<b>1968</b>												
16 - 17 years.....M.	56	27	313	254	—	2,598	3	414	769	7	19	4,460
F.	4	2	25	31	—	200	1	43	35	—	2	343
18 - 19 ".....M.	128	33	271	289	1,406	2,395	468	387	817	1,076	29	7,299
F.	9	—	16	20	89	264	43	29	71	103	—	644
20 - 24 ".....M.	137	38	385	362	3,161	3,383	577	496	1,146	1,472	47	11,204
F.	8	2	29	23	292	404	84	36	131	186	3	1,198
<b>Totals, 1968.....</b>	<b>342</b>	<b>102</b>	<b>1,039</b>	<b>979</b>	<b>4,948</b>	<b>9,241</b>	<b>1,176</b>	<b>1,405</b>	<b>2,969</b>	<b>2,844</b>	<b>100</b>	<b>25,148</b>

## 11.—Young Adult Offenders Convicted of Indictable Offences, by Class of Offence and Sex, 1967 and 1968

Class of Offence	1967		1968	
	Males	Females	Males	Females
	No.	No.	No.	No.
<b>Criminal Code</b>				
<b>Class I.—Offences against the Person.....</b>	<b>2,652</b>	<b>91</b>	<b>2,749</b>	<b>91</b>
Abduction and kidnapping.....	27	—	27	2
Assault, causing bodily harm, common, on police and obstruction.....	1,965	71	2,010	74
Offences against females <sup>1</sup> .....	306	4	328	2
Causing death by criminal negligence, <sup>2</sup> manslaughter and murder.....	58	4	67	3
Attempted murder, causing bodily harm and danger.....	74	6	100	3
Criminal negligence in operation of motor vehicle.....	11	—	57	—
Duties tending to preservation of life.....	—	—	3	1
Other offences against the person.....	211	6	157	6
<b>Class II.—Offences against Property with Violence.....</b>	<b>5,811</b>	<b>119</b>	<b>6,143</b>	<b>86</b>
Breaking and entering a place, extortion and robbery.....	5,811	119	6,143	86
<b>Class III.—Offences against Property without Violence.....</b>	<b>10,626</b>	<b>1,632</b>	<b>10,412</b>	<b>1,637</b>
Fraud and false pretences.....	676	147	725	172
Having in possession.....	1,440	72	1,631	81
Theft.....	8,510	1,413	8,056	1,384
<b>Class IV.—Malicious Offences against Property.....</b>	<b>735</b>	<b>24</b>	<b>742</b>	<b>31</b>
Arson and other fires.....	58	6	51	1
Other interference with property.....	677	18	691	30
<b>Class V.—Forgery and Other Offences Relating to Currency.....</b>	<b>467</b>	<b>88</b>	<b>525</b>	<b>95</b>
Forgery and uttering forged documents.....	431	84	485	87
Offences relating to currency.....	36	4	40	8

For footnotes, see end of table.

### 11.—Young Adult Offenders Convicted of Indictable Offences, by Class of Offence and Sex, 1967 and 1968—concluded

Class of Offence	1967		1968	
	Males	Females	Males	Females
	No.	No.	No.	No.
<b>Criminal Code—concluded</b>				
<b>Class VI.—Other Offences</b> .....	<b>1,475</b>	<b>136</b>	<b>1,540</b>	<b>128</b>
Driving while ability to drive is impaired.....	26	—	98	—
Driving while intoxicated.....	2	—	2	—
Gaming, betting and lotteries.....	17	4	25	4
Keeping bawdy houses.....	4	40	4	33
Various other offences.....	1,426	92	1,411	91
<b>Totals, Criminal Code</b> .....	<b>21,766</b>	<b>2,090</b>	<b>22,111</b>	<b>2,068</b>
<b>Federal Statutes<sup>2</sup></b>				
Narcotic Control Act.....	445	108	832	114
Other statutes.....	6	2	20	3
<b>Totals, Federal Statutes</b> .....	<b>451</b>	<b>110</b>	<b>852</b>	<b>117</b>
<b>Grand Totals</b> .....	<b>22,217</b>	<b>2,200</b>	<b>22,963</b>	<b>2,185</b>

<sup>1</sup> Includes abortion, indecent assault on female, sexual intercourse and attempt, incest, procuring, rape, attempted rape and seduction. <sup>2</sup> Includes causing death in the operation of a motor vehicle or otherwise. <sup>3</sup> Excludes Quebec.

### 12.—Disposition of Sentences for Indictable Offences, by Age and Sex, 1967 and 1968

Disposition of Sentences	1967				1968			
	16-24 Years		25 Years or Over		16-24 Years		25 Years or Over	
	M.	F.	M.	F.	M.	F.	M.	F.
	No.	No.	No.	No.	No.	No.	No.	No.
Suspended sentence.....	2,680	410	2,029	690	3,693	510	2,273	734
Probation.....	6,182	728	1,308	359	4,686	472	959	244
Fine.....	4,448	660	5,472	2,056	4,529	694	5,476	1,579
Gaol.....	6,287	299	6,575	407	7,334	415	6,838	556
Reformatory and training school.....	1,454	82	543	46	1,342	72	413	42
Penitentiary.....	1,164	21	1,738	58	1,376	22	1,719	43
Death.....	2	—	5	—	—	—	1	—
Other.....	—	—	—	—	3	—	7	—

#### Subsection 3.—Convictions for Summary Conviction Offences

Offences punishable on summary conviction are triable by magistrates and justices of the peace under the Criminal Code or under the provincial summary conviction Acts as the case may be. Data relating to these offences are based on convictions; no information is available on either the number of persons involved in these offences or the number of charges. In these cases, following arrest or summons to appear in court, the accused person must be tried by a magistrate or justice of the peace without the intervention of a jury. Such cases are heard in police court with a minimum of delay.

## 13.—Convictions for Summary Conviction Offences, by Type, 1968 and 1969

Type of Offence	1968	1969 <sup>1</sup>	Type of Offence	1968	1969 <sup>1</sup>
No.	No.	No.	No.	No.	No.
<b>Criminal Code</b> .....	<b>96,666</b>	<b>77,860</b>	<b>Federal Statutes</b> .....	<b>28,828</b>	<b>25,777</b>
Attempts, conspiracies, accessories, counselling.....	258	179	Customs.....	175	111
Attempt to commit suicide.....	342	168	Excise.....	984	1,175
Bawdy house.....	168	189	Fisheries.....	1,193	924
Causing disturbance by being drunk.....	3,035	3,131	Food and Drugs.....	192	280
Common assault.....	8,344	7,191	Harbour Board and Merchant Seamen's.....	139	113
Communicating venereal disease.....	5	9	Immigration.....	232	311
Contempt of court.....	29	19	Income Tax.....	7,938	8,361
Corrupting morals.....	377	254	Indian—		
Cruelty to animals.....	83	123	Intoxication.....	2,194	1,110
Damage not exceeding \$50 and other interference with property.....	3,840	3,009	Other.....	816	453
Disorderly conduct.....	14,616	10,090	Juvenile Delinquents—		
Duty of persons to provide necessities.....	371	293	Adults who contribute to delinquency.....	1,026	785
Duty to safeguard dangerous places.....	8	9	Incorrigibility.....	1,426	1,463
Fraudulently obtaining food or lodging.....	1,162	829	Inducing child to leave home, etc.....	26	13
Fraudulently obtaining transportation.....	151	143	Sexual immorality.....	137	18
Gaming, betting, lotteries.....	824	647	Lord's Day.....	86	17
Intimidation.....	234	233	National Defence.....	421	361
Killing or injuring bird or animal other than cattle.....	30	37	Railway.....	971	774
<b>Motor Vehicle—</b>			Unemployment Insurance.....	3,305	2,603
Criminal negligence in operation.....	1,445 <sup>2</sup>	243	Weights and Measures.....	68	79
Dangerous driving.....	2,692	2,334	Other federal statutes.....	7,499	6,826
Dangerous operation of vessel, etc.....	183	98	<b>Provincial Statutes</b> .....	<b>1,595,517</b>	<b>1,473,852</b>
Driving while impaired.....	30,585	25,876	Children of Unmarried Parents.....	1,170	1,496
Driving while disqualified.....	7,073	4,823	Deserted Wives and Children's Maintenance.....	7,991	7,963
Driving while intoxicated.....	1,257	1,257	Game and Fisheries.....	6,526	6,324
Driving with more than 80 mgs. in blood.....	...	143	Highway Traffic—		
Failing to stop at scene of accident.....	4,009	3,631	Driving without care.....	80,403	65,442
Motor vehicle equipped with smoke screen.....	22	39	Other traffic.....	1,268,118	1,204,621
Taking motor vehicle without consent.....	1,826	1,490	Liquor Control.....	204,624	165,591
Offensive weapons.....	1,328	968	Master and Servant.....	584	545
Personating peace officer.....	51	54	Medical, Dentistry and Pharmacy.....	73	79
Recognizance, breach of.....	1,868	1,781	Mental Diseases.....	251	210
Vagrancy.....	4,929	4,046	Prairie and Forest Fire Prevention.....	145	71
Other Criminal Code.....	5,521	4,514	Protection of Children.....	4,313	3,802
			Public Health.....	420	453
			School Laws.....	245	198
			Other provincial statutes.....	20,654	17,057
			<b>Municipal By-laws</b> .....	<b>371,795</b>	<b>133,547</b>
			Intoxication.....	12,468	3,474
			Traffic.....	299,132	83,431
			Other.....	60,195	46,642
			<b>Totals, Convictions</b> .....	<b>2,092,806</b>	<b>1,711,036</b>

<sup>1</sup> Excludes Quebec.<sup>2</sup> Includes Quebec figures for dangerous driving and failing to stop at scene of accident.

## Subsection 4.—Appeals

Appeal is an important safeguard in Canada's legal system and the conviction of a judge and jury or a judge may be appealed on the grounds that the verdict was unreasonable, that there was a wrong decision on some question of law or that there was a miscarriage of justice. In 1969, there were 3,719 appeals in indictable cases disposed of by the courts, of which 360 were Crown appeals and 3,359 appeals of the accused. Of the Crown appeals, 75 were from acquittal and 285 from sentence. Appeals in summary conviction cases disposed of by the courts numbered 1,677 in 1969. Of these, 224 were appeals of the informant and 1,453 appeals of the accused. The informant appeals comprised 176 from acquittal and 48 from sentence, and appeals of the accused comprised 1,189 from conviction and 264 from sentence.



### Section 3.—Juvenile Delinquents

*Juvenile Delinquent*, as defined in the Juvenile Delinquents Act, means any child who violates any provision of the Criminal Code or of any federal or provincial statute, or of any by-law or ordinance of any municipality, or who is guilty of sexual immorality or any similar form of vice, or who is liable by reason of any other act to be committed to an industrial school or juvenile reformatory under the provision of any federal or provincial statute. The commission by a child of any of these acts constitutes an offence known as a delinquency. The upper age limit of children brought before the juvenile courts in the provinces varies. The Act defines a child as meaning any boy or girl apparently or actually under the age of 16 years, or such other age as may be directed in any province. In Prince Edward Island, Nova Scotia, New Brunswick, Ontario and Saskatchewan under 16 is the official age; in Alberta under 16 for boys and under 18 for girls; in Newfoundland under 17; in Quebec, Manitoba and British Columbia under 18 years. Up to 1967, it was the practice of Statistics Canada to publish information about juvenile delinquents 16 years of age or over separate from that of juveniles under 16 years of age. From 1967 on, the figures include all those considered as juveniles by the respective provinces, regardless of the differing upper age limits.

Included in the statistics of juvenile delinquents (Tables 14-21) are cases (alleged as well as adjudged) which were brought before the courts and dealt with formally. A case was counted separately each time a child appeared before the court for a new delinquency or delinquencies. In instances where multiple delinquencies were dealt with at one court appearance, only one delinquency—the most serious—was selected for tabulation. Delinquencies reported as informal cases by the courts were not included nor were cases of children presenting conduct problems which were not brought to court or which were dealt with by the police, social agencies, schools or youth-serving agencies. Thus, community facilities for dealing with children's problems may have an influence on the number of cases referred to court and, therefore, an effect on the statistics of juvenile delinquents.

It should be noted that all 1969 figures given in Tables 14-21 exclude those for Manitoba because of the initiation of a revised reporting program in that province. Statistics for Manitoba, as well as a description of the change, are given separately in Tables 22 and 23, pp. 503-504.

#### 14.—Juveniles brought before the Courts, by Province, and Total Dismissed and Delinquent, 1965-69

Province or Territory	1965	1966	1967 <sup>1</sup>	1968 <sup>1</sup>	1969 <sup>2</sup>	Percentage Change, 1968-69 <sup>2</sup>
	No.	No.	No.	No.	No.	
Newfoundland.....	638	701	540	748	800	+ 7.0
Prince Edward Island.....	50	43	27	18	4	-77.8
Nova Scotia.....	950	1,059	892	963	977	+ 1.5
New Brunswick.....	464	466	514	721	745	+ 3.3
Quebec.....	3,253	4,192	6,617	6,690	10,637	+58.9
Ontario.....	10,064	10,376	11,234	12,154	14,223	+17.0
Manitoba.....	1,070	1,329	2,244	—	—	—
Saskatchewan.....	295	234	195	257	180	-29.9
Alberta.....	1,557	2,032	2,150	2,611	2,922	+11.9
British Columbia.....	2,634	2,946	4,537	4,932	4,940	+ 0.2
Yukon Territory.....	—	2	—	—	—	—
Northwest Territories.....	—	19	8	3	26	+766.6
<b>Canada.....</b>	<b>20,975</b>	<b>23,399</b>	<b>28,958</b>	<b>29,097</b>	<b>35,454</b>	<b>+21.8</b>
Dismissed.....	527	528	634	945	1,203	+27.3
Adjourned <i>sine die</i> .....	2,096	2,561	3,246	4,252	7,054	+65.8
Delinquent.....	18,352	20,310	25,078	23,900	27,197	+13.7

<sup>1</sup> Includes all those considered as juveniles by the respective provinces regardless of the official upper age limit (see text above); figures for previous years include juveniles 7-15 years of age.

<sup>2</sup> Excludes Manitoba (see text above).

## 15.—Juvenile Delinquents, by Province, 1960-69

Year	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T. and N.W.T.	Canada
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
1960....	409	35	682	460	2,692	5,364	1,019	231	1,031	2,042	—	13,965
1961....	400	52	551	487	2,801	6,819	723	260	1,230	1,890	2	15,215
1962....	484	56	823	435	2,849	7,647	778	216	1,198	2,072	50	16,608
1963....	511	65	749	452	2,643	8,451	749	237	1,270	2,429	—	17,556
1964....	544	30	693	529	2,779	9,271	793	249	1,635	2,813	29	19,365
1965....	629	50	708	399	2,887	8,670	856	248	1,443	2,462	—	18,352
1966....	693	43	740	408	3,696	8,865	1,060	212	1,768	2,805	20	20,310
1967....	534	23	692	456	6,251	8,831	1,880	182	1,860	4,361	8	25,078
1968 <sup>1</sup> ....	680	10	683	604	6,067	8,711	3,242	242	2,300	4,600	3	27,142
1969 <sup>2</sup> ....	754	2	746	621	7,415	10,514	—	171	2,541	4,407	26	27,197

<sup>1</sup> Includes all those considered as juveniles by the respective provinces, regardless of the official upper age limit (see text on p. 499); figures for previous years include juveniles 7-15 years of age. <sup>2</sup> Excludes Manitoba.

## 16. Total Delinquent Children, by Number of Delinquent Appearances, 1968 and 1969, with Number of Appearances in Previous Years

Number of Delinquent Appearances	Total Delinquent Children	Delinquent Appearances in Previous Years												
		0	1 or More	1	2	3	4	5	6	7	8	9	10	11+
1968	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
1 or more..	23,482	18,715	4,767	2,368	945	523	341	192	123	72	61	39	31	72
1.....	20,519	16,935	3,584	1,878	689	378	244	116	84	53	42	27	20	53
2.....	2,427	1,524	903	396	191	100	69	56	33	15	11	9	7	16
3.....	422	208	214	76	57	30	19	14	4	2	4	2	4	2
4.....	85	36	49	14	6	9	8	4	1	2	4	1	—	—
5.....	20	10	10	3	1	4	—	—	1	—	—	—	—	1
6.....	9	2	7	1	1	2	1	2	—	—	—	—	—	—
7.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1969 <sup>1</sup>														
1 or more..	23,424	18,594	4,830	2,370	1,034	484	306	203	119	78	52	40	39	105
1.....	20,471	16,780	3,691	1,912	764	363	211	143	76	58	33	29	26	76
2.....	2,340	1,496	844	351	200	99	67	38	28	13	13	7	6	22
3.....	462	251	211	80	50	14	19	11	12	6	5	3	6	5
4.....	118	56	62	18	16	7	6	8	2	1	1	1	1	1
5.....	24	7	17	7	4	1	1	2	1	—	—	—	—	1
6.....	9	4	5	2	—	—	2	1	—	—	—	—	—	—
7.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—

<sup>1</sup> Excludes Manitoba.

**17.—Juvenile Delinquents, by Group of Offence, and Ratio per 100,000 Population,<sup>1</sup>  
1960-69**

Year	Delinquencies against the Person		Delinquencies against Property with Violence		Delinquencies against Property without Violence		Wilful and Forbidden Acts in respect of Certain Property		Forgery and Delinquencies relating to Currency		Other Delinquencies		Total Convictions	
	No.	Ratio to Population	No.	Ratio to Population	No.	Ratio to Population	No.	Ratio to Population	No.	Ratio to Population	No.	Ratio to Population	No.	Ratio to Population
1960...	369	11	2,953	92	5,694	177	1,272	40	36	1	3,641	113	13,965	434
1961...	382	11	3,511	103	6,435	189	1,248	37	33	1	3,606	106	15,215	447
1962...	400	13	3,563	102	7,129	204	1,420	41	49	1	3,987	114	16,608	475
1963...	490	14	3,864	108	7,386	206	1,630	45	48	1	4,138	115	17,556	489
1964...	525	14	4,361	119	8,058	229	1,654	45	51	1	4,716	120	19,365	528
1965...	539	14	4,130	111	7,722	207	1,490	40	93	2	4,378	117	18,352	492
1966...	559	14	4,403	115	8,561	223	1,691	44	77	2	5,019	131	20,310	529
1967...	747	17	5,998	139	10,489	242	1,894	44	149	3	5,801	134	25,078	579
1968...	849	19	6,754	153	10,509	238	1,784	41	108	3	7,138	162	27,142	616
1969 <sup>2</sup> ...	883	21	6,834	160	11,122	261	1,866	44	106	3	6,386	150	27,197	640

<sup>1</sup> For 1960-66, ratio of population 7-15 years of age; for 1967-69, ratio of population 7-17 years of age, depending on the province.

<sup>2</sup> Excludes Manitoba.

**18.—Juvenile Delinquents classified by Type of Delinquency, 1965-69**

Delinquency	1965	1966	1967 <sup>1</sup>	1968 <sup>1</sup>	1969 <sup>2</sup>
	No.	No.	No.	No.	No.
Manslaughter and murder and causing death by criminal negligence.....	4	3	5	5	4
Murder, attempt.....	1	1	1	2	1
Rape and attempt, sexual intercourse and incest.....	12	10	10	15	8
Indecent assault (male and female).....	114	101	107	139	108
Assault, causing bodily harm and danger.....	58	58	170	126	184
Common assault.....	307	337	375	436	484
Interfering with transportation facilities.....	2	—	—	—	—
Other offences against the person.....	41	49	79	126	2
Breaking and entering a place.....	4,037	4,322	5,815	6,553	6,647
Robbery and extortion.....	93	81	183	201	168
Theft and having in possession.....	7,669	8,493	10,373	10,410	10,981
False pretences and fraud and corruption.....	53	68	116	99	141
Arson.....	119	116	132	125	111
Other interference with property.....	1,371	1,575	1,762	1,605	1,723
Forgery and delinquencies relating to currency.....	93	77	149	108	106
Incorrigibility and vagrancy.....	844	640	759	900	1,213
Immorality.....	201	166	235	249	285
Various other delinquencies.....	3,333	4,213	4,807	6,043	5,031
<b>Totals.....</b>	<b>18,352</b>	<b>20,310</b>	<b>25,078</b>	<b>27,142</b>	<b>27,197</b>

<sup>1</sup> Includes all those considered as juveniles by the respective provinces, regardless of the official upper age limit (see text on p. 499); figures for previous years include juveniles 7-15 years of age.

<sup>2</sup> Excludes Manitoba.

**19.—Percentages of Delinquent Boys and Girls, by Age Group, 1968 and 1969**

Age Group	1968			1969 <sup>1</sup>		
	Boys	Girls	Both Sexes	Boys	Girls	Both Sexes
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
7-12 years.....	14.4	8.5	13.8	13.6	8.9	13.0
13-17 ".....	84.7	90.7	85.4	85.5	90.2	86.1
Not given.....	0.9	0.8	0.8	0.9	0.9	0.9
<b>Totals.....</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

<sup>1</sup> Excludes Manitoba.



## 20.—Age, Sex and School Grade of Delinquent Boys and Girls, 1968 and 1969

(B=Boys; G=Girls)

Age	School Grades																Total Delinquents	
	Elementary										Secondary		Auxiliary		Not Given			
	1-4		5		6		7		8									
	B	G	B	G	B	G	B	G	B	G								
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
1968																		
7 years.....	20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20	—
8 ".....	97	4	—	—	1	—	—	—	—	—	—	—	—	—	13	—	111	4
9 ".....	243	10	28	—	1	—	—	—	—	—	1	—	5	—	23	—	301	10
10 ".....	258	12	151	7	25	4	2	2	1	—	—	—	9	—	46	3	492	28
11 ".....	212	13	306	11	240	24	41	4	5	—	—	—	17	—	62	3	883	55
12 ".....	140	5	285	27	503	46	436	43	94	20	6	1	32	2	127	22	1,623	166
13 ".....	83	4	184	25	445	79	958	140	727	139	135	34	67	4	246	43	2,845	468
14 ".....	51	8	110	11	316	48	988	133	1,644	265	1,302	269	127	28	413	79	4,951	841
15 ".....	21	—	69	9	204	26	579	72	1,594	225	3,384	521	165	20	779	115	6,795	988
16 ".....	12	4	30	1	65	10	171	21	391	26	1,482	175	45	4	335	35	2,531	276
17 ".....	9	—	31	5	68	9	180	7	311	24	1,777	160	80	7	545	50	3,001	262
Not given.....	1	—	—	—	2	—	3	—	5	1	10	—	—	1	415	53	436	55
Totals.....	1,147	60	1,194	96	1,870	246	3,358	422	1,772	700	8,097	1,160	547	66	3,004	403	23,959	3,153
1969 <sup>1</sup>																		
7 years.....	9	3	—	—	—	—	—	—	—	—	—	—	—	—	2	—	11	3
8 ".....	80	4	—	—	—	—	—	—	—	—	—	—	1	—	9	—	90	4
9 ".....	216	11	18	—	—	—	—	—	—	—	—	—	6	—	21	1	261	12
10 ".....	248	19	152	10	27	—	3	—	—	—	—	—	11	—	39	3	480	32
11 ".....	152	10	319	17	227	29	46	6	6	—	—	—	19	2	74	7	843	71
12 ".....	80	8	242	30	476	45	499	61	71	15	10	1	27	5	158	13	1,563	178
13 ".....	48	2	125	8	399	57	978	115	830	157	128	34	86	9	232	27	2,826	409
14 ".....	37	3	71	6	256	20	899	109	1,761	285	1,384	282	170	27	466	79	5,044	811
15 ".....	15	2	48	7	156	18	488	41	1,453	175	3,902	741	266	51	815	148	7,143	1,183
16 ".....	12	3	26	2	44	5	165	13	429	37	1,543	228	68	4	318	45	2,605	337
17 ".....	15	2	29	4	52	5	139	14	311	34	1,685	197	83	9	422	54	2,736	319
Not given.....	—	—	—	—	1	—	1	—	3	—	5	1	—	—	194	31	204	32
Totals.....	912	67	1,030	84	1,638	179	3,218	359	4,864	703	8,657	1,484	737	107	2,750	408	23,806	3,391

<sup>1</sup> Excludes Manitoba.

## 21.—Disposition of Delinquents, by Type of Sentence, 1960-69

Year	Reprimanded		Probation of Court		Protection of Parents		Fined or Made Restitution		Detained Indefinitely		Sent to Training School		Final Disposition Suspended		Mental Hospital	
	No.	p.c.	No.	p.c.	No.	p.c.	No.	p.c.	No.	p.c.	No.	p.c.	No.	p.c.	No.	p.c.
1960.....	442	3.2	7,413	53.1	518	3.7	2,289	16.4	42	0.3	1,791	12.8	1,456	10.4	14	0.1
1961.....	544	3.6	7,341	48.2	644	4.2	2,148	14.1	89	0.6	1,974	13.0	2,466	16.2	9	0.1
1962.....	697	4.2	8,827	53.1	369	2.2	2,219	13.4	89	0.5	1,862	11.2	2,533	15.3	12	0.1
1963.....	977	5.6	8,292	47.2	462	2.6	2,460	14.0	99	0.6	2,043	11.6	3,180	18.1	43	0.3
1964.....	1,062	5.5	9,624	49.7	612	3.2	2,247	11.6	139	0.7	1,967	10.1	3,699	19.1	15	0.1
1965.....	773	4.2	10,021	54.6	550	3.0	2,133	11.6	80	0.4	1,925	10.5	2,845	15.5	25	0.1
1966.....	791	3.9	10,826	53.3	1,014	5.0	2,343	11.5	96	0.4	1,971	9.7	3,258	16.0	17	0.1
1967.....	854	3.4	15,603	62.2	1,116	4.4	2,230	8.9	93	0.4	1,978	7.9	3,185	12.7	19	0.1
1968.....	983	3.6	13,563	50.0	1,296	4.8	3,728	13.7	298	1.1	1,167	8.0	5,081	18.7	26	0.1
1969 <sup>1</sup> .....	653	2.4	13,309	48.9	1,880	6.9	3,264	12.0	235	0.9	2,334	8.6	5,500	20.2	22	0.1

<sup>1</sup> Excludes Manitoba.

**Delinquents in Manitoba.**—As stated on p. 499, the Province of Manitoba initiated a revised reporting program for delinquency in 1969. Basically, there are three groups of figures included in the new program: (1) those showing juveniles involved in judicial, non-judicial and no-contact procedures where the juvenile is counted only once in the year; (2) a count of all delinquencies recorded during the year; and (3) a group of all delinquencies

against the Highway Traffic Act, including a duplicate count of juveniles who have more than one charge against them and regardless of the number of appearances at court. The information on informal or "non-judicial" and "no-contact" cases, under (1), was previously unreported.

In 1969, there were 4,975 juveniles charged with delinquencies in Manitoba. Of this number 1,829 were found delinquent, 20 resulted in no action, 17 were dismissed, 446 were adjourned, 36 were referred to adult court, and 2,627 were dealt with informally. The disposition of sentence for those found delinquent was: reprimand, 120; indefinite detention, 1; probation, 893; fine or restitution, 459; training school, 108; mental hospital, 1; suspended disposition, 200; and suspended driver's licence, 54.

## 22.—Juvenile Delinquents in Manitoba, by Nature of Delinquency and by Age and Sex, 1969

(B=Boys; G=Girls)

Delinquency	Age and Sex											
	7 years		8 Years		9 Years		10 Years		11 Years		12 Years	
	B	G	B	G	B	G	B	G	B	G	B	G
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
<b>Criminal Code</b> .....	<b>24</b>	<b>1</b>	<b>41</b>	<b>7</b>	<b>65</b>	<b>11</b>	<b>123</b>	<b>12</b>	<b>144</b>	<b>22</b>	<b>208</b>	<b>56</b>
Against the person.....	2	—	—	—	2	—	3	—	2	1	6	1
Against property with violence.....	4	—	11	1	19	—	35	1	53	3	77	13
Against property without violence.....	12	1	21	5	30	9	57	10	70	15	84	39
Malicious offences against property.....	5	—	9	1	11	2	22	1	16	3	37	2
Against currency and forgery.....	—	—	—	—	1	—	—	—	2	—	2	—
Other.....	1	—	—	—	2	—	6	—	1	—	2	1
<b>Federal Statutes</b> .....	<b>1</b>	<b>1</b>	<b>2</b>	<b>—</b>	<b>1</b>	<b>2</b>	<b>6</b>	<b>4</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>2</b>
<b>Provincial Statutes</b> .....	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>1</b>	<b>2</b>	<b>3</b>
<b>Municipal By-laws</b> .....	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>2</b>	<b>—</b>	<b>5</b>	<b>—</b>
<b>Totals, All Delinquencies</b> .....	<b>25</b>	<b>2</b>	<b>43</b>	<b>7</b>	<b>66</b>	<b>13</b>	<b>129</b>	<b>16</b>	<b>148</b>	<b>26</b>	<b>219</b>	<b>61</b>
	13 Years		14 Years		15 Years		16 Years		17 Years		Not Stated <sup>1</sup>	Total
	B	G	B	G	B	G	B	G	B	G	B	
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
<b>Criminal Code</b> .....	<b>326</b>	<b>85</b>	<b>448</b>	<b>97</b>	<b>484</b>	<b>91</b>	<b>517</b>	<b>76</b>	<b>503</b>	<b>54</b>	<b>2</b>	<b>3,397</b>
Against the person.....	22	3	25	7	28	3	30	3	59	1	—	198
Against property with violence.....	118	19	145	9	150	11	130	11	136	9	1	956
Against property without violence.....	143	54	222	71	228	59	248	41	202	33	1	1,655
Malicious offences against property.....	37	7	36	4	46	5	52	8	41	3	—	348
Against currency and forgery.....	—	—	2	—	1	1	2	1	3	—	—	15
Other.....	6	2	18	6	31	12	55	12	62	8	—	225
<b>Federal Statutes</b> .....	<b>14</b>	<b>20</b>	<b>15</b>	<b>28</b>	<b>24</b>	<b>30</b>	<b>28</b>	<b>25</b>	<b>41</b>	<b>17</b>	<b>—</b>	<b>270</b>
<b>Provincial Statutes</b> .....	<b>11</b>	<b>19</b>	<b>51</b>	<b>34</b>	<b>119</b>	<b>56</b>	<b>269</b>	<b>85</b>	<b>550</b>	<b>82</b>	<b>1</b>	<b>1,283</b>
<b>Municipal By-laws</b> .....	<b>4</b>	<b>—</b>	<b>1</b>	<b>—</b>	<b>3</b>	<b>—</b>	<b>4</b>	<b>—</b>	<b>5</b>	<b>1</b>	<b>—</b>	<b>25</b>
<b>Totals, All Delinquencies</b> .....	<b>355</b>	<b>124</b>	<b>515</b>	<b>159</b>	<b>630</b>	<b>177</b>	<b>818</b>	<b>186</b>	<b>1,099</b>	<b>154</b>	<b>3</b>	<b>4,975<sup>2</sup></b>

<sup>1</sup> No girls.

<sup>2</sup> Unduplicated.

**23.—Employment Status of Juvenile Delinquents in Manitoba, by Educational Level, 1969**

Educational Level	Status of Delinquent					Total
	Student	Employed	Un-employed	Other	Not Stated	
	No.	No.	No.	No.	No.	No.
Grade 1.....	—	—	—	—	—	—
Grade 2.....	—	1	2	1	—	4
Grade 3.....	—	—	2	—	—	2
Grade 4.....	—	1	11	—	—	12
Grade 5.....	—	11	28	1	—	40
Grade 6.....	—	33	68	5	—	106
Grade 7.....	1	54	117	2	—	174
Grade 8.....	1	113	150	6	—	270
Grade 9.....	1	86	82	4	1	174
Grade 10.....	—	59	41	1	—	101
Grade 11.....	—	17	6	1	—	24
Grade 12.....	—	6	3	—	—	9
Grade 13.....	—	—	—	—	—	—
Other.....	3,724	1	5	1	1	3,732
Not stated.....	—	39	35	11	242	327
<b>Totals.....</b>	<b>3,727</b>	<b>421</b>	<b>550</b>	<b>33</b>	<b>244</b>	<b>4,975<sup>1</sup></b>

<sup>1</sup> Unduplicated.**Section 4.—Correctional Institutions and Training Schools****Subsection 1.—Statistics of Correctional Institutions and Training Schools**

Correctional institutions may be classified under four headings: (1) Penitentiaries—operated for adult offenders by the Federal Government in which, generally speaking, sentences of over two years are served; (2) Reformatories—operated for adult offenders by the provinces in which individual sentences of up to two years are served; (3) Common Gaols—operated for adult offenders by the provinces or counties in which sentences of up to two years can be served but in which, generally speaking, short-term sentences are served; and (4) Training Schools—operated by the provinces or private organizations under provincial charter for juvenile offenders serving indefinite terms up to the legal age for children in the particular province.

There is a limited amount of statistical information available with respect to these types of institution. "In-custody" figures shown in Table 24 for penitentiaries refer only to those persons under sentence, but the figures for admissions include those received from courts as well as by transfer from other penitentiaries and by cancellation of paroles. Figures for releases include expiry of sentences, transfers between penitentiaries, releases on parole, deaths, pardons and releases on court order. In-custody figures for provincial and county institutions may include, in addition to those serving sentences, persons awaiting trial, on remand for sentence or psychiatric examination, awaiting appeal or deportation, any others not serving sentence and, for training school population, juveniles on placement.

Population figures in Tables 24 and 25 are for a given day of the year, which is Mar. 31 except for Quebec gaols where populations are counted as of Dec. 31. These figures represent, in effect, a yearly census of correctional institutions and, as such, are not indicative of the daily average population count. For instance, if an abnormal number of commitments is made to a certain institution on or just prior to Mar. 31, the result will be an unrepresentative population total for the institution in that year.

With regard to the fluctuations that might have occurred during the year between census days, the total population of correctional institutions has shown a general increase since Mar. 31, 1965; however, totals for each type of institution have shown a tendency to level off or decline slightly.



**24.—Population in Penitentiaries, Years Ended Mar. 31, 1965-69**

Item	1965	1966	1967	1968	1969
	No.	No.	No.	No.	No.
In custody at beginning of year.....	7,655	7,514	7,437	7,168	7,026
Received during year.....	5,852	5,991	7,128	7,204	8,204
Discharged during year.....	5,993	6,068	7,397	7,346	8,113
In custody at end of year.....	7,514	7,437	7,168	7,026	7,117

**25.—Populations in Reformatories and Gaols and in Training Schools, as at Mar. 31, 1965-69**

Type of Institution	1965	1966	1967	1968	1969
	No.	No.	No.	No.	No.
<b>Reformatories and Gaols—</b>					
Reformatories for men.....	3,970	3,686	3,968	3,922	3,900
Reformatories for women.....	129	156	111	134	106
Common gaols.....	8,484	8,415	8,260	8,630	8,532
<b>Totals, Reformatories and Gaols.....</b>	<b>12,583</b>	<b>12,257</b>	<b>12,339</b>	<b>12,686</b>	<b>12,538</b>
<b>Training Schools—</b>					
Training schools for boys.....	2,706	2,545	2,478	2,552	2,686
Training schools for girls.....	1,332	1,215	1,127	1,104	1,107
<b>Totals, Training Schools.....</b>	<b>4,038</b>	<b>3,760</b>	<b>3,605</b>	<b>3,656</b>	<b>3,793</b>

**Subsection 2.—The Canadian Penitentiary Service**

The Penitentiary Service operates under the Penitentiary Act (RSC 1970, c. P-6) and is under the jurisdiction of the Solicitor General of Canada. It is responsible for all federal penitentiary institutions and for the care and training of persons sentenced or committed thereto. The Commissioner of Penitentiaries, under the direction of the Solicitor General, has control and management of the Service and all matters connected therewith. In the year ended Mar. 31, 1971, the federal penitentiary system consisted of seven maximum security institutions, nine medium security, 12 minimum security and eight specialized institutions.

The maximum security institutions receive inmates sentenced by the courts to imprisonment for terms of from two years to life. These are located at Dorchester, N.B.; Ville de Laval and Ste. Anne des Plaines, Que.; Kingston and Millhaven, Ont.; Prince Albert, Sask.; and New Westminster, B.C. The maximum security institutions at Ste. Anne des Plaines, and Millhaven were constructed as part of a plan to abandon the St. Vincent de Paul and Kingston Penitentiaries.

The medium and minimum security institutions and the correctional camps receive inmates transferred from the maximum security institutions on the basis of their suitability for special forms of training, including vocational training. The medium security institutions are located as follows: the Springhill Institution at Springhill, N.S.; the Federal Training Centre and the Leclerc Institution at Ville de Laval, Que.; the Cowansville Institution at Cowansville, Que.; the Collins Bay Penitentiary and the Joyceville Institution within a few miles of Kingston, Ont.; the Warkworth Institution at Campbellford, Ont.; the Manitoba Penitentiary at Stony Mountain, Man.; and the Drumheller Institution at Drumheller, Alta. The minimum security institutions are located as follows: the Dorchester Penitentiary Farm Annex at Dorchester, N.B.; the Blue Mountain Correctional Camp at Westfield, N.B.; the Laval Minimum Security Institution at Ville de Laval, Que.;

the Ste. Anne des Plaines Minimum Security Institution at Ste. Anne des Plaines, Que.; the Joyceville Institution Farm Annex at Joyceville, Ont.; the Collins Bay Penitentiary Farm Annex near Kingston, Ont.; the Beaver Creek Correctional Camp near Gravenhurst, Ont.; the Landry Crossing Correctional Camp near Petawawa, Ont.; the Manitoba Penitentiary Farm Annex at Stony Mountain, Man.; the Saskatchewan Penitentiary Farm Annex at Prince Albert, Sask; the William Head Institution at Metchosin, B.C.; and the Agassiz Correctional Camp at Agassiz, B.C.

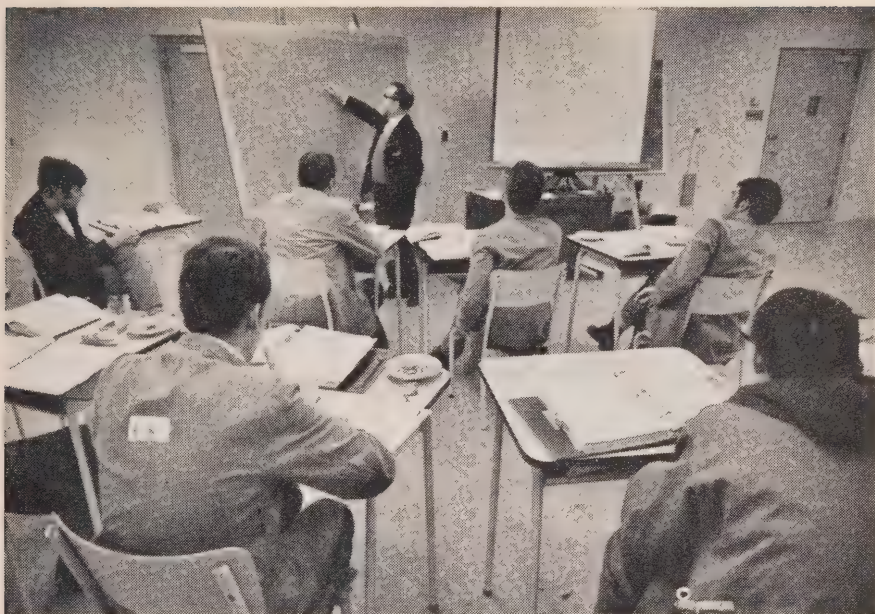
The Penitentiary Service operates specialized institutions located as follows: the Special Correctional Unit at Ville de Laval, Que., for the training of hostile inmates; the Matsqui Institution at Abbotsford, B.C., for the training of narcotic addicts; the Mountain Prison near Agassiz, B.C., for the training of older male recidivists; the Prison for Women at Kingston, Ont.; and four Community Release Centres located at Montreal, Toronto, Winnipeg and Vancouver. Some inmates sentenced to penitentiary terms in Newfoundland are held in the provincially operated institution at St. John's, under the provisions of Sect. 14 of the Penitentiary Act.

Headquarters of the Penitentiary Service is located at Ottawa and regional directorates at New Westminster, B.C., Kingston, Ont., and Ville de Laval, Que., for the Western, Ontario and Quebec areas, respectively. Three Correctional Staff Colleges—at Kingston, Ville de Laval and New Westminster—are operated for the training of recruits and for the advanced training of penitentiary officers. These Staff Colleges also provide excellent facilities for Service-wide conferences of institutional heads and other special groups of officers.

As at Mar. 31, 1971, about 64 p.c. of the inmates were in medium and minimum security institutions or specialized institutions. New institutions have been carefully designed to provide facilities for the rehabilitation of their inmates. All afford space for both indoor and outdoor recreation. Some of the old institutions are being brought up to date to meet present-day needs and others are being phased out.

Every inmate, on arriving at a penitentiary, is examined and classified. Young or first offenders are segregated from the recidivists. Doctors, psychologists and social workers examine them from the viewpoints of physical and mental health, abilities, training and need for schooling, so as to launch them on a program of rehabilitation. The program of the Correctional Services is directed primarily toward assisting the inmate in every way to regain his proper place in society. The facilities to achieve this are available and the staff involved in the process is dedicated. Academic opportunities are provided and inmates attend classes on either a full-time or a part-time basis. Other students advance their education by correspondence courses offered at the elementary, secondary or university level. In 1970-71, 3,563 inmate students participated in the academic education program, often with a view to acquiring a trade or a profession. Expanded use was made of day parole and temporary absence in order to enable students to attend community education facilities. Thirty inmate students were attending universities, secondary schools or community colleges at year-end. Religious programs are provided for all inmates and from 20 p.c. to 50 p.c. of them participate in worship services. Most chapels run multi-purpose chapel programs during the week where, besides religious instruction, other activities related to religious services are carried on. There is active inmate involvement in this section of the program, including considerable community participation.

Plans are being finalized to introduce interdisciplinary teams to be responsible for groups of inmates on a living unit basis in five of the newer institutions. The concept is an attempt to "personalize" the contacts between staff and inmates, to activate interpersonal relationships so that inmates, many of whom have regarded authority—whether inside or outside institutions—as antagonistic, will learn to relate to it. The concept of the living unit which breaks down the inmate population into smaller groups, with assigned staff, facilitates the establishment of interpersonal relationships.



*The resources of St. Lawrence Community College at Kingston, Ont., are made available to inmates of Collin's Bay Penitentiary. During 1970-71, as many as 400 inmates will be either improving their academic education or taking post-secondary courses in business administration and polytechnics.*

Temporary absences continued to increase sharply during the 1970-71 fiscal year and easily exceeded 20,000. Such leaves are granted for periods of up to three days by the Institutional Head and up to 15 days by the Commissioner, for humanitarian, rehabilitative and medical reasons. The failure rate of this program was a fraction of 1 p.c.

A sound and healthy program of evening and weekend activities has been developed and expanded over the past year. Sixteen Citizen Participation Committees have been established at institutions, comprising 120 citizens, and more than 10,000 citizens are involved in inmates' programs associated with the leisure-time activities of inmates. These programs include A.A., drama, singing, musical instruction, guitar groups and public speaking as well as a diversified and varied assortment of discussion groups run by private agencies, professional and voluntary citizens and community groups, lectures, films, sports and recreation.

The inmate who is in need receives professional services or counselling by staff specialists; 23 physicians, 20 dentists, 23 psychiatrists, 30 psychologists and 107 classification officers and social workers, employed on a full-time or a part-time basis, serve an inmate population of about 7,450.

### **Subsection 3.—The National Parole System**

Parole is a means by which an inmate in any correctional institution in Canada, if he gives definite indication of his intention to reform, can be released to finish his sentence in the community. The purpose of parole is the protection of society through the rehabilitation of the inmate. The true purpose of corrections should be the reformation of the offender



and not merely vengeance or retribution. Nevertheless, the National Parole Board is as much concerned with the protection of society as with the reformation of the offender and supervision is as much a part of the parole system as is guidance. The Board selects those inmates who show sincere intention to reform and assists them in doing so by granting parole. The inmate then is allowed to serve the remainder of his sentence in society, but under supervision, subject to certain restrictions and conditions. The Board is not a reviewing authority and is not concerned with the propriety of the conviction or the length of the sentence; this is the function of the court. Nor is parole granted for clemency or mercy.

The National Parole Board is an independent agency of the Department of the Solicitor General of Canada, operating under the authority of the Parole Act (RSC 1970, c. P-2), which came into force Feb. 15, 1959 replacing the Ticket-of-Leave Act, and was amended in 1967 and in 1969. The Board is composed of a chairman and eight other members. It has jurisdiction for parole over any adult inmate of any prison in Canada who was convicted of an offence against an Act of the Parliament of Canada and has authority to revoke or suspend any sentence of whipping or any order made under the Criminal Code prohibiting any person from operating a motor vehicle. It has no jurisdiction over a child under the Juvenile Delinquents Act, or an inmate serving a sentence for a breach of a provincial statute, such as a liquor control Act.

A person is sent to a federal institution if his sentence of imprisonment is two years or more, or to a provincial institution if his sentence is less than two years. All inmates can become eligible to apply for parole and need not obtain the services of a lawyer to do so. The date of parole review, to grant or refuse parole, for an inmate in a federal penitentiary is set within six months of his entry into the institution. If the sentence is under two years, the inmate is eligible for parole after one third of the sentence is served; if the sentence is two years or more, the inmate is eligible after one third of the sentence is served or after four years, whichever is less, although he must serve at least nine months of his sentence. The Board has the authority to grant an earlier release in exceptional circumstances where the case is deserving and where the best interests of the community and the inmate will be served. Where the sentence is for life, eligibility comes after seven years. If the inmate is serving a life sentence where the death sentence has been commuted, or a life sentence as a minimum punishment, parole cannot be granted until 10 years of the sentence have been served; in both cases consent for parole must be given by the Governor in Council.

Unless an inmate advises the Board in writing that he does not want parole, the Board will review his case every two years, whether he applies or not, until he is either granted parole or his sentence is served. However, once eligible for parole, the inmate may apply at any time. An inmate in a provincial institution must either apply or have someone apply on his behalf. When an application is received an investigation lasting about four months is begun and the results presented to the Board for decision. In addition, a representative of the Board interviews the inmate.

The decision of the Board with respect to any one inmate is based on reports it receives from the police, from the trial judge or magistrate and from various people at the institution who deal with him. Reports are also obtained, when available, from a psychologist or a psychiatrist and, if necessary, a community investigation is conducted to secure as much information as possible about his family and background, his work record and his position in the community. From these reports, an assessment is made to determine whether or not he has changed his attitude and is likely to lead a law-abiding life.

When all the reports are received and the community investigation completed, they are analysed and presented to the Board for consideration. Parole for inmates in provincial institutions is granted or refused on the basis of these reports and investigations. For the inmate in a federal institution there is one more step before the Board makes its decision.

He is interviewed by a panel of two or more Board members before his parole eligibility date to clarify or amplify his reasons for requesting parole and other aspects of his case that may have come to light through the reports and investigations.

A person on parole is under the care of a supervisor in one of the Board's 34 district offices, an after-care agency worker, or a probation officer. If he violates the conditions of his parole or commits a further offence or misbehaves in any manner, the Board may suspend or revoke his parole and return him to the institution to serve the part of his sentence that was outstanding at the time his parole was granted. If a parolee commits an indictable offence, his parole is automatically forfeited and he is returned to the institution to serve the unexpired balance of his sentence plus any new term to which he is sentenced for the commission of the new offence. The district representative may also issue a Warrant of Suspension and have a parolee placed in custody if it is necessary to prevent a breach of any term or condition of the parole. These officers are thus able to exercise effective and adequate control over all parolees in their respective areas.

During the 12 years of its operation, up to December 1970, the Parole Board granted parole (of all types) to 33,532 inmates. During the same period, 3,310 parolees were returned to prison; 1,564 parolees were revoked for misbehaviour or the commission of a minor offence, and 1,746 parolees were forfeited for the commission of an indictable offence.

## Section 5.—Police Forces and Crime Statistics

**Organization of Police Forces.**—The police forces of Canada are organized in three groups: (1) the federal force, which is the Royal Canadian Mounted Police; (2) provincial police forces—the Provinces of Ontario and Quebec have their own provincial police forces but all other provinces engage the services of the Royal Canadian Mounted Police to perform parallel functions within their borders; and (3) municipal police forces—most urban centres of reasonable size maintain their own police forces or engage the services of the provincial police, under contract, to attend to police matters. In addition, the Canadian National Railways, the Canadian Pacific Railway Company and the National Harbours Board have their own police forces.

*The Royal Canadian Mounted Police.*—The Royal Canadian Mounted Police is a civil force maintained by the Federal Government. It was established in 1873 as the North-West Mounted Police for service in what was then the North-West Territories and, in recognition of its services, was granted the use of the prefix "Royal" by King Edward VII in 1904. Its sphere of operations was expanded in 1918 to include all of Canada west of Thunder Bay and in 1920 it absorbed the Dominion Police, its headquarters was transferred from Regina to Ottawa and its title was changed to Royal Canadian Mounted Police.

The Force now operates under authority of the Royal Canadian Mounted Police Act (RSC 1970, c. R-9). It is responsible to the Solicitor General of Canada and is controlled and managed by a Commissioner who holds the rank and status of a Deputy Minister and is empowered under the Act to appoint members to be peace officers in all provinces and territories of Canada.

The administration of justice within the provinces, including the enforcement of the Criminal Code of Canada, is part of the power and duty delegated to the provincial governments and all provinces, except Ontario and Quebec, have entered into contracts with the Royal Canadian Mounted Police to enforce criminal and provincial laws, under the direction of the respective Attorneys General. In addition, in these eight provinces, the Force is under agreement to provide police services to 155 municipalities, thereby assuming the enforcement responsibility of municipal as well as criminal and provincial laws within these

communities. The Yukon and Northwest Territories are policed exclusively by the Royal Canadian Mounted Police and therefore criminal offences, federal statutes and all ordinances of the territories fall within the ambit of Force responsibility. The Force maintains liaison officers in London and Washington and represents Canada in the International Criminal Police Organization, which has headquarters in Paris.

The 12 Operational Divisions, alphabetically designated, make up the strength of the Force across Canada; they comprise 41 subdivisions which include 691 detachments. "Headquarters" Division, as well as the Office of the Commissioner, are located at Ottawa. Divisional headquarters, for the most part, are located in the provincial capitals, except for "C" Division which is in Montreal and "A" and "G" Divisions which are in Ottawa. "Air" Division, also with headquarters in Ottawa, supports the Operational Divisions by providing transportation and related services. "N" Division in Ottawa and "Depot" Division in Regina are training divisions.

A teletype system links the widespread divisional headquarters with the administrative centre at Ottawa and a network of fixed and mobile radio units operates within the provinces. The focal point of the criminal identification work of the Force is the Directorate of Laboratories and Identification; its services, together with those of the divisional and subdivisional units and the five Crime Detection Laboratories, are available to police forces throughout Canada. The Force operates the Canadian Police College at which Force members and selected representatives of other Canadian and foreign police forces may study the latest advances in the fields of crime prevention and detection.

As of Mar. 31, 1971, the Force had a total strength of 12,992, including regular members, special constables, civilian members and Public Service employees.

*Quebec Police Force.*—The Quebec Police Force is responsible for the maintenance of peace, order and public safety in the province, and for the prevention and investigation of criminal offences and of violation of all laws of the province.

The province is divided into two almost equal parts known as the Montreal Division and the Quebec Division. The Montreal Division has three subdivisions with headquarters at Granby, Hull and Montreal; the Quebec Division has two subdivisions with headquarters at Chicoutimi and Quebec City. There are 108 detachments throughout the province—59 in the Montreal Division and 49 in the Quebec Division. In addition, two pilot districts became operational in 1970—the Estrie Division consisting of six detachments with headquarters at Sherbrooke and the Lower St. Lawrence District consisting of three sections directing 21 detachments with headquarters at Rimouski. The Force at the end of 1970 had 3,402 members, including officers, non-commissioned officers and constables.

The Quebec Police Force is under the command of a Director General, assisted by four Deputy Directors General and a Comptroller of Personnel. Each Division is headed by a Chief Inspector and each subdivision by a commissioned officer.

*Ontario Provincial Police.*—The Ontario Provincial Police, a Crown force, is the third largest deployed force on the North American Continent, having a total authorized strength of more than 4,877 (1971) uniformed and civilian personnel.

The Force is administered from general headquarters at Toronto by a Commissioner who has the rank and status of a Deputy Minister under the Minister of Justice. Other senior executive officers include two Deputy Commissioners and five Assistant Commissioners. The Force has two principal sides—Operations and Services—which are administered under the supervision of the Deputy Commissioner Operations and the Deputy Commissioner Services, respectively. In turn, five Divisions at the next level are administered by their respective Assistant Commissioners—Assistant Commissioner Field, Assistant Commissioner Traffic, Assistant Commissioner Administration, Assistant Commissioner Staff Services and Assistant Commissioner Special Services.



Specialized Branches under the Special Services Division include Auto Theft, Criminal Investigation, Anti-rackets, Security Intelligence, Criminal Intelligence, Anti-gambling and Liquor Laws Enforcement.

For policing and administration purposes, the province is divided geographically into 17 districts. In the field, there are 194 detachments controlled through 17 district headquarters located at Chatham, London, Burlington, Niagara Falls, Downsview, Mount Forest, Barrie, Peterborough, Belleville, Perth, Long Sault, North Bay, Sudbury, Sault Ste. Marie, South Porcupine, Thunder Bay and Kenora. Fifteen municipalities are policed under special contract.

Under provisions of the Ontario Police Act, the Force is responsible for: (1) enforcing federal and provincial statutes in those areas that are not required to maintain their own police department; (2) maintaining a traffic patrol on the more than 10,000 miles of King's Highways and 65,000 miles of secondary county and township roads; (3) enforcing the Liquor Licence Act and the Liquor Control Act for Ontario; (4) maintaining a Criminal Investigation Branch and other specialized branches to assist all other forces in the investigation of major crimes; and (5) assisting other forces by providing additional manpower in the event of emergencies.

Under the Staff Services Division, the Central Records and Communications Branch offers 24-hour-seven-day-week service to all police departments in Ontario on such matters as criminal records, fingerprint records, missing and wanted persons, dry cleaning and laundry mark identification, and stolen and recovered property lists.

The Force operates one of the largest frequency modulation radio networks in the world, with 107 fixed radio stations and more than 1,300 radio-equipped mobile units including motorcycles, marine units and aircraft. It also operates the Ontario Provincial Police telecommunications network connecting all 17 districts as well as other police departments on a local, national and international basis. Extensions to routine police service are provided by canine, SCUBA and marine-bush rescue units strategically located throughout the province and available to other law-enforcement agencies upon request.

In addition to regular constable recruitment, the Force has a cadet program making it possible for qualified young men to create for themselves a career in a long-established police force. Ranking officers, from inspector up to and including the Commissioner, receive the Queen's Commission in the same manner as maintained with the Canadian Armed Forces.

*Municipal Police Forces.*—Provincial legislation makes it mandatory for cities and towns to furnish adequate municipal policing for the maintenance of law and order in their communities. Also, all villages and townships or parts of townships that have a population density and a real property assessment sufficient to warrant maintenance of a police force, and have been so designated by Order in Council, are made responsible for the adequate policing of their municipalities.

*Uniform Crime Reporting.*—The present method of reporting police statistics (police administration, crime and traffic enforcement statistics), known as the Uniform Crime Reporting Program, was started on Jan. 1, 1962, and was developed by the (then) Dominion Bureau of Statistics in co-operation with the Canadian Association of Chiefs of Police Committee on Uniform Crime Reporting.

*Police Personnel.*—As shown in Table 26, police personnel in Canada numbered 46,034 at the end of 1969, including 38,589 sworn-in policemen, 6,957 other full-time employees serving as clerks, technicians, artisans, commissionaires, guards, special constables, etc., and 488 cadets. The ratio of police personnel per 1,000 population was 2.2 and the ratio of police was 1.8. Provincial ratios for police personnel ranged from 1.2 to 4.2 per 1,000

persons and for police only from 1.1 to 3.9. In 12 selected metropolitan areas there were 16,424 police personnel including 14,158 police and 2,266 cadets and other full-time employees. Total municipal police personnel numbered 26,013, made up of 24,562 in municipal forces, 1,398 Royal Canadian Mounted Police and 53 provincial police under municipal contracts.

There were five policemen killed by criminal action during 1969 and 5 policemen lost their lives accidentally while on duty. Police transport facilities at the end of the year included 7,732 automobiles, 880 motorcycles, 772 other motor vehicles, 423 boats, 23 aircraft, 237 horses and 79 service dogs.

### 26.—Police Personnel, by Type of Force, 1968 and 1969

Force	1968				1969			
	Police	Cadets	Other Full-Time Employees	Total	Police	Cadets	Other Full-Time Employees	Total
	No.	No.	No.	No.	No.	No.	No.	No.
Royal Canadian Mounted Police—								
Actual strength.....	8,915	—	2,327	11,242	9,201	—	2,623	11,824
Authorized strength.....	8,766	—	2,634	11,400	9,156	—	2,885	12,041
Engagements.....	675	—	411	1,086	642	—	430	1,072
Retirements and other separations.....	357	—	249	606	381	—	277	658
Ontario Provincial Police—								
Actual strength.....	3,461	50	831	4,342	3,573	26	880	4,479
Authorized strength.....	3,512	50	868	4,430	3,619	26	911	4,556
Engagements.....	430	48	261	739	335	14	265	614
Retirements and other separations.....	207	71	199	477	223	38	216	477
Quebec Police Force—								
Actual strength.....	2,779	49	747	3,575	3,065	33	743	3,841
Authorized strength.....	2,903	75	747	3,725	3,103	75	743	3,921
Engagements.....	239	36	127	402	325	31	92	448
Retirements and other separations.....	62	43	69	174	39	47	96	182
Municipal Police (excl. RCMP and OPP contracts)—								
Actual strength.....	20,630	363	2,489	23,482	21,505	429	2,628	24,562
Authorized strength.....	21,374	359	2,527	24,260	22,034	431	2,680	25,145
Engagements.....	1,862	298	563	2,723	2,178	346	640	3,164
Retirements and other separations.....	1,217	287	460	1,964	1,354	261	525	2,140
Canadian National Railways Police—								
Actual strength.....	550	—	27	577	535	—	28	563
Authorized strength.....	557	—	27	584	556	—	28	584
Engagements.....	43	—	6	49	58	—	3	61
Retirements and other separations.....	63	—	5	68	73	—	2	75
Canadian Pacific Railway Company Police—								
Actual strength.....	526	—	27	553	487	—	21	508
Authorized strength.....	551	—	27	578	489	—	22	511
Engagements.....	95	—	7	102	36	—	1	37
Retirements and other separations.....	101	—	7	108	75	—	7	82
National Harbours Board Police—								
Actual strength.....	183	—	27	210	223	—	34	257
Authorized strength.....	192	—	27	219	224	—	33	257
Engagements.....	45	—	9	54	33	—	6	39
Retirements and other separations.....	12	—	—	12	14	—	5	19
<b>Totals, All Forces—</b>								
Actual strength.....	37,044	462	6,475	43,981	38,589	488	6,957	46,034
Authorized strength.....	37,855	484	6,857	45,196	39,181	532	7,302	47,015
Engagements.....	3,389	382	1,384	5,155	3,607	391	1,437	5,435
Retirements and other separations.....	2,019	401	989	3,409	2,159	346	1,128	3,633

**27.—Police Personnel, by Sex and Type of Force, 1968 and 1969**

(Actual strength)

Force	Police		Cadets		Other Full-Time Employees		Totals	
	M.	F.	M.	F.	M.	F.	M.	F.
	No.	No.	No.	No.	No.	No.	No.	No.
<b>1968</b>								
Royal Canadian Mounted Police.....	8,915	—	—	—	801	1,526	9,716	1,526
Ontario Provincial Police.....	3,461	—	50	—	402	429	3,913	429
Quebec Police Force.....	2,777	2	49	—	426	321	3,252	323
Municipal Police (excl. RCMP and OPP contracts).....	20,444	186	351	12	1,451	1,038	22,246	1,236
Canadian National Railways Police.....	547	3	—	—	9	18	556	21
Canadian Pacific Railway Company Police.....	526	—	—	—	10	17	536	17
National Harbours Board Police.....	183	—	—	—	20	7	203	7
<b>1969</b>								
Royal Canadian Mounted Police.....	9,201	—	—	—	814	1,809	10,015	1,809
Ontario Provincial Police.....	3,573	—	26	—	405	475	4,004	475
Quebec Police Force.....	3,063	2	33	—	409	334	3,505	336
Municipal Police (excl. RCMP and OPP contracts).....	21,311	194	414	15	1,490	1,138	23,215	1,347
Canadian National Railways Police.....	533	2	—	—	9	19	542	21
Canadian Pacific Railway Company Police.....	487	—	—	—	9	12	496	12
National Harbours Board Police.....	223	—	—	—	22	12	245	12

*Crime Statistics.*—Table 28 shows the number of crimes dealt with by the police in 1969, including offences under the Criminal Code, federal statutes, provincial statutes and municipal by-laws; offences cleared by charge and otherwise; and the number of adults and juveniles charged. Offences reported or known to the police but proved unfounded are not shown in the table but numbered 79,623, including 65,097 under Criminal Code classifications, 6,675 under federal statutes, 6,116 under provincial statutes and 1,735 under municipal by-laws, except traffic.

During 1969, the police reported 85,056 offences committed against the person, including 342 murders, 10,736 rape and other sexual offences, and 73,718 offences of wounding and other assaults (not indecent); all offences against the person resulted in the charging of 30,485 persons, 2,110 of them juveniles. During the year there were 607,544 cases of robbery, theft and other offences against property, resulting in 113,313 persons charged, 37,199 of them juvenile males and 3,433 juvenile females; 57,788 cases of fraud, false pretences, forgery, etc.; 2,136 of prostitution; 1,787 gaming and betting; 5,561 offensive weapons; and 232,789 other Criminal Code offences. In addition to the 47,070 federal statute offences reported, 8,179 were reported under the Narcotic Control Act and 2,341 under the controlled drug part of the Food and Drugs Act; these two classifications resulted in the charging of 6,199 persons.

Provincial and territorial fire marshals and commissioners reported 3,168 suspected or known incendiary offences, of which 1,038 were proved unfounded; 473 offences were reported cleared by charge, resulting in 378 adults and 194 juveniles being charged.

The number of motor vehicles stolen was 58,861 (an estimated 713.1 per 100,000 vehicles registered); 53,071 or 90.2 p.c. of these vehicles were recovered. Police were asked to locate 21,696 missing adults and 43,592 missing juveniles; 20,527 adults and 42,733 juveniles were found. The number of drownings reported by police was 1,479.



## 28.—Crime Statistics, by Type of Offence, 1968 and 1969

Year and Offence	Actual Offences <sup>1</sup>	Offences Cleared		Persons Charged			
		By Charges	Other- wise	Adults		Juveniles	
				Male	Female	Male	Female
	No.	No.	No.	No.	No.	No.	No.
<b>1968</b>							
<b>Criminal Code</b> .....	<b>897,530</b>	<b>204,125</b>	<b>121,211</b>	<b>150,257</b>	<b>15,709</b>	<b>47,503</b>	<b>4,885</b>
Murder, capital and non-capital.....	315	230	31	209	27	24	2
Attempted murder.....	181	135	15	105	18	8	1
Manslaughter.....	59	53	1	43	6	3	1
Rape.....	892	437	145	598	—	34	2
Other sexual offences.....	9,732	3,462	1,477	2,977	23	463	41
Wounding.....	1,293	798	213	515	98	242	33
Assaults (not indecent).....	66,690	23,297	29,468	20,942	1,211	1,263	180
Robbery.....	8,382	2,492	481	2,765	165	521	13
Breaking and entering.....	144,895	25,591	9,284	16,402	353	12,420	359
Theft, motor vehicle.....	54,712	10,282	2,749	7,502	150	4,874	120
Theft over \$50.....	99,167	11,191	5,838	8,577	879	3,069	188
Theft \$50 or under.....	232,941	33,681	25,866	18,220	5,134	12,949	2,388
Having stolen goods.....	7,725	6,910	462	4,964	339	1,369	144
Fraud.....	48,556	24,275	5,865	10,929	1,326	362	72
Prostitution.....	1,996	1,897	26	519	1,475	16	19
Gaming and betting.....	2,115	1,889	42	2,418	142	15	1
Offensive weapons.....	5,013	3,719	724	3,148	91	468	9
Other Criminal Code <sup>1</sup> .....	215,866	53,786	38,524	49,424	4,272	9,403	1,312
<b>Federal Statutes<sup>2</sup></b> .....	<b>40,058</b>	<b>30,891</b>	<b>5,323</b>	<b>25,193</b>	<b>1,654</b>	<b>1,132</b>	<b>647</b>
Narcotic Control Act.....	4,761	2,290	362	2,351	458	230	61
Controlled Drugs under the Food and Drugs Act.....	682	189	124	161	12	11	3
<b>Provincial Statutes<sup>1</sup></b> .....	<b>317,912</b>	<b>250,963</b>	<b>54,340</b>	<b>229,323</b>	<b>16,374</b>	<b>7,050</b>	<b>2,076</b>
<b>Municipal By-laws<sup>1</sup></b> .....	<b>74,501</b>	<b>52,206</b>	<b>12,855</b>	<b>44,412</b>	<b>5,485</b>	<b>2,534</b>	<b>195</b>
<b>1969</b>							
<b>Criminal Code</b> .....	<b>992,661</b>	<b>221,563</b>	<b>137,961</b>	<b>159,497</b>	<b>17,564</b>	<b>46,140</b>	<b>5,056</b>
Murder, capital and non-capital.....	342	249	31	218	42	16	—
Attempted murder.....	216	169	14	159	19	7	—
Manslaughter.....	44	38	1	35	5	3	—
Rape.....	1,019	506	170	726	2	32	—
Other sexual offences.....	9,717	3,444	1,624	3,020	23	350	27
Wounding.....	1,641	982	360	557	78	317	51
Assaults (not indecent).....	72,077	24,444	33,206	22,183	1,308	1,123	183
Robbery.....	10,028	2,585	580	2,885	153	645	41
Breaking and entering.....	161,677	28,109	10,578	17,968	409	14,440	466
Theft, motor vehicle.....	59,531	11,292	3,503	7,940	180	5,553	106
Theft over \$50.....	119,742	12,605	6,960	9,509	1,059	3,451	256
Theft \$50 or under.....	246,212	37,878	29,567	20,184	6,195	11,560	2,423
Having stolen goods.....	10,354	9,246	795	5,821	378	1,550	141
Fraud.....	57,788	27,290	6,976	12,336	1,767	416	105
Prostitution.....	2,136	2,021	18	595	1,473	4	23
Gaming and betting.....	1,787	1,563	57	2,926	123	18	4
Offensive weapons.....	5,561	4,170	731	3,602	149	351	10
Other Criminal Code <sup>1</sup> .....	232,789	54,972	42,790	48,833	4,201	6,304	1,219
<b>Federal Statutes<sup>2</sup></b> .....	<b>47,070</b>	<b>34,936</b>	<b>7,567</b>	<b>28,370</b>	<b>1,777</b>	<b>885</b>	<b>665</b>
Narcotic Control Act.....	8,179	4,411	683	4,032	591	529	118
Controlled Drugs under the Food and Drugs Act.....	2,341	907	323	732	69	112	16
<b>Provincial Statutes<sup>1</sup></b> .....	<b>346,541</b>	<b>261,427</b>	<b>73,843</b>	<b>238,711</b>	<b>16,271</b>	<b>4,183</b>	<b>1,830</b>
<b>Municipal By-laws<sup>1</sup></b> .....	<b>71,839</b>	<b>46,831</b>	<b>14,930</b>	<b>39,654</b>	<b>5,758</b>	<b>1,807</b>	<b>138</b>

<sup>1</sup> Except traffic.<sup>2</sup> Except traffic, Narcotic Control Act and Food and Drugs Act.

During 1969, police departments in Canada reported 110,734 Criminal Code traffic offences, resulting in 70,208 persons charged, 1,765 of them females. Total charges reported under federal statutes numbered 6,148, provincial statutes 1,970,377 and municipal by-laws 387,397, excluding parking violations; the latter numbered 4,877,700, most of them reported by municipal police. There are certain traffic offences under provincial statutes which are almost identical to those under the Criminal Code. These are shown separately for 1968 and 1969 in Table 29.

The number of traffic accidents reported was 626,906, of which 4,644 involved fatalities, 116,935 resulted in injuries and 421,620 involved property damage of over \$100. There were 5,543 persons killed in traffic accidents, including 4,098 drivers and passengers, 1,225 pedestrians, 187 cyclists and 33 others; persons injured numbered 173,845.

**29.—Traffic Enforcement Statistics, by Type of Offence, 1968 and 1969**

Year and Offence	Actual Offences	Offences Cleared		Persons Charged	
		By Charge	Other- wise	Male	Female
	No.	No.	No.	No.	No.
<b>1968</b>					
<b>Criminal Code</b> .....	<b>101,360</b>	<b>68,847</b>	<b>5,652</b>	<b>64,677</b>	<b>1,632</b>
Criminal Negligence—					
Causing death.....	218	208	1	201	6
Causing bodily harm.....	88	72	—	74	—
Operating motor vehicle.....	400	364	4	340	6
Failing to stop or remain at scene of accident.....	40,872	10,072	4,847	7,934	437
Dangerous driving.....	5,291	4,892	121	4,635	70
Driving while intoxicated.....	3,664	3,632	23	3,563	69
Driving while impaired.....	41,452	40,421	589	39,296	962
Driving while disqualified.....	9,380	9,186	67	8,634	82
<b>Federal Statutes (except parking)</b> .....	..	..	..	<b>9,803</b>	
<b>Provincial Statutes (except parking)</b> .....	..	..	..	<b>1,952,404</b>	
<b>Municipal By-laws (except parking)</b> .....	..	..	..	<b>365,256</b>	
<b>Provincial Statutes<sup>1</sup></b> .....	<b>61,155</b>	<b>52,043</b>	<b>2,381</b>	<b>48,875</b>	<b>2,682</b>
Failing to stop or remain at scene of accident.....	12,654	5,163	1,474	4,673	245
Dangerous driving.....	46,628	45,054	880	42,405	2,410
Driving while disqualified.....	1,873	1,826	27	1,797	27
<b>1969</b>					
<b>Criminal Code</b> .....	<b>110,734</b>	<b>73,074</b>	<b>6,735</b>	<b>68,443</b>	<b>1,765</b>
Criminal Negligence—					
Causing death.....	208	202	4	199	5
Causing bodily harm.....	89	79	6	80	—
Operating motor vehicle.....	418	400	10	361	11
Failing to stop or remain at scene of accident.....	45,667	9,717	5,820	7,994	439
Dangerous driving.....	5,277	4,954	122	4,703	62
Driving while intoxicated.....	3,289	3,243	24	3,106	51
Driving while impaired.....	46,918	45,798	696	43,824	1,065
Driving while disqualified.....	8,868	8,681	53	8,176	132
<b>Federal Statutes (except parking)</b> .....	..	..	..	<b>6,148</b>	
<b>Provincial Statutes (except parking)</b> .....	..	..	..	<b>1,970,377</b>	
<b>Municipal By-laws (except parking)</b> .....	..	..	..	<b>387,397</b>	
<b>Provincial Statutes<sup>1</sup></b> .....	<b>68,988</b>	<b>57,018</b>	<b>3,899</b>	<b>53,145</b>	<b>3,161</b>
Failing to stop or remain at scene of accident.....	14,867	5,929	1,617	5,275	343
Dangerous driving.....	51,354	48,383	2,237	45,208	2,792
Driving while disqualified.....	2,767	2,706	45	2,662	26

<sup>1</sup> Provincial traffic offences almost identical to those under the Criminal Code.

# CHAPTER X.—RENEWABLE RESOURCES AND THE ENVIRONMENT

## CONSPECTUS

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Over the past several years Canadians have become increasingly aware of the problems of environmental quality management. The deteriorating quality of Canada's waters, its air and its soils, the noise and congestion of urban life, and the exploitation of its mineral resources, its fisheries and forests and its wildlife became vitally important to many concerned and conscientious citizens. Man was clearly having a greater and greater impact on his natural environment and yet he had no definite idea of what the delicate ecosystem could bear in the way of man's intrusion. A range of problems relating to the wise use of the natural environment became one of the major issues of the late 1960s and promises to remain so throughout the rest of this century. Obviously, an issue of this magnitude required an immediate response from all governments in Canada. It was vital to develop a consistent philosophy regarding man's place in the Canadian and world environments and to develop a series of policies that could give effect to this philosophy.

The goals of the Federal Government in this respect are, on the one hand, to ensure that all Canadians have access to a style of life befitting a nation rich in natural resources and, on the other hand, to safeguard these natural resources for future use by the present generation and the generations to follow. To this end, the Department of the Environment has been established—to help to ensure the protection, preservation and enhancement of Canada's environment while encouraging efficient use of its natural resources.

The Department is concerned primarily with renewable resources—air, water, fish, forests and wildlife. Its research, planning and management programs are directed toward incorporating environmental design into resource management processes. How many salmon can be taken from the Fraser River without jeopardizing future generations of fish? How much effluent can be discharged safely into a river? How rigidly can sanctions be employed against polluters without causing adverse economic consequences in an area? These are examples of the extremely difficult questions that need to be faced, and different answers apply in different cases.

### Section 1.—The Federal Department of the Environment

Early in 1970, the former Department of Fisheries and Forestry; the Fisheries Research Board; the Canada Land Inventory of the Department of Regional Economic Expansion; the Canadian Wildlife Service of the Department of Indian Affairs and Northern Development; the Meteorological Service (now the Atmospheric Environment Service) of the Ministry of Transport; the Water Sector of the Department of Energy, Mines and Resources; and the Air Pollution Control and Public Health Engineering Divisions of the Department of National Health and Welfare were combined and reorganized to create the



new Department of the Environment. The general goals of the new Department have been stated as follows: (1) to maintain the capacity to meet historical and statutory responsibilities for research and management of air, water, fish, forest and wildlife resources; (2) to clean up and control pollution; (3) to assess and control the environmental impact of major new programs, projects and developments; (4) to improve the understanding of long-term environmental phenomena; (5) to promote and support international environmental initiatives; and (6) to create a better public awareness and understanding of environmental issues.

Since almost all of these goals involve co-operation and co-ordination with other departments and with other governments both in Canada and internationally, the Department of the Environment sees itself as embarked upon a co-operative endeavour in which it will act both to carry out programs of its own and to catalyze programs of others, to the end of improving the Canadian environment.

### **The Departmental Structure**

The Department is divided into seven "Services", each of which has responsibility for some particular area of departmental programs; they are described briefly below. More detail on the activities of most of these services is given in other chapters of this publication, as indicated by the page references.

**The Atmospheric Environment Service.**—This Service is responsible for planning, establishing and operating air-quality networks and surveys, for providing an information service on the state of the atmosphere and trends in its quality, for collecting and analysing weather data and ice-movement data, for atmospheric research, for air and noise pollution research and finally for weather forecasting. (See also pp. 49-53).

**The Fisheries Service.**—The responsibilities of the Fisheries Service include activities for achieving the best economic utilization of the fisheries resource; and research into the conservation and use of aquatic renewable resources and the biological fitness of the aquatic environment. The Service is also responsible for administering Canada's role in international fisheries, the Fisheries Prices Support Board and the Fisheries Research Board. (See also pp. 686-693.)

**The Lands, Forests and Wildlife Service.**—The responsibilities of this Service include land classification and inventory, land use study and planning, forestry research and consultative services, forest products research and consultative services, forest management services on federal lands, conservation and management of migratory birds, wildlife habitat acquisition and management, and wildlife research and consultative services. (See pp. 665-677 for federal and provincial forest management and pp. 708-714 for wildlife conservation.)

**The Water Management Service.**—The broad mandate of this Service is to improve the management and use of Canada's inland and marine water resources. To meet this end, the Service plans for and manages national inland water research and data network programs including the hydrographic surveys and charting programs, undertakes oceanographic research including the operations of the marine Environment Data Centre, and manages a fleet of ships in support of marine and inland survey and research programs. Additionally, the service undertakes co-operative federal-provincial programs for planned water resource management. (See pp. 42-43 for data on Federal Government surveying and mapping.)

**The Environmental Protection Service.**—This new organization within the Department of the Environment takes action in preventing or combating environmental problems for which the Department has responsibility, including pollution control in water and air, solid wastes management and control and disposal of environmental contaminants.

It is responsible for the control of activities having an ecological impact, for noise control, for the operation of an emergency pollution centre and for environmental protection from federal activities and facilities.

**The Finance and Administration Service.**—The functions of the Finance and Administration Service are to support the over-all departmental program by assisting in the acquisition and deployment of those human, physical and financial resources required for the efficient and effective fulfilment of departmental objectives.

**The Policy Planning and Research Service.**—In contrast to the established groups that were brought together to form the new Department of the Environment, the Policy Planning and Research Service was conceived during the organizational process. It was created to provide an over-all framework of policy and planning advice; to co-ordinate the Government's relationships respecting environmental and resource matters with the provinces and with other countries; and to develop and co-ordinate a comprehensive approach to departmental science policy and research activities. The Service is comprised of three directorates— the Policy and Planning Directorate, the Intergovernmental Affairs Directorate and the Research Co-ordination Directorate.

The Policy and Planning Directorate develops and recommends on broad departmental objectives, policies, plans, priorities and resource allocations and has the capability to analyse policy and program alternatives involving a number of disciplines. The Intergovernmental Affairs Directorate is responsible for co-ordinating the extensive formal interrelationships of the Department with other federal departments and agencies and with provincial and foreign governments. It will co-ordinate negotiations with the provinces and foreign governments, as well as the Department's participation in the many international organizations concerned with the environment and renewable resources, and will



Canada's major airlines are progressing with their programs to fit aircraft engines with anti-smoke devices to reduce exhaust pollution. An Air Canada DC-9, in a flypast, shows the difference in smoke emission between a modified and an unmodified engine.

assist in establishing and organizing Canada's approach to international environmental quality. The Research Directorate is responsible for developing science policy advice for the Department by recommending on how science and technology can best be used or developed to contribute to departmental objectives. It co-operates with the central science advisers to the government, with the new Ministry of State for Science and Technology, and other government departments. It recommends on research priorities and resource allocations to ensure that scientific programs that involve more than one service of the Department are undertaken in a co-ordinated manner.

## Section 2.—Federal Legislation Relating to Environmental Programs

There are already on the statute books a large number of Acts that are important in renewable resources and environmental quality management. A listing of the major pieces of legislation includes the following:

<i>Legislation</i>	<i>Responsible Department</i>
The Fisheries Act (RSC 1970, c. F-12, amended 1970)	Environment
The Canada Water Act (and phosphate regulations) (SC 1969-70, c. 52)	Environment
The Migratory Birds Convention Act (RSC 1970, c. M-12)	Environment
The International River Improvements Act (RSC 1970, c. I-22)	Environment
The Game Export Act (RSC 1970, c. G-1)	Environment
The Fisheries Development Act (RSC 1970, c. F-21)	Environment
The Clean Air Act (SC 1970-71, c. 47)	Environment
The Forestry Development and Research Act (RSC 1970, c. F-30)	Environment
The Navigable Waters Protection Act (RSC 1970, c. N-19)	Transport
The Canada Shipping Act (RSC 1952, c. 29, amended 1971)	Transport
The National Harbours Board Act (RSC 1970, c. N-8)	Transport
The St. Lawrence Seaway Authority Act (RSC 1970, c. S-1)	Transport
The Motor Vehicle Safety Act (SC 1969-70, c. 30)	Transport
The Arctic Waters Pollution Prevention Act (SC 1969-70, c. 47)	Indian Affairs and Northern Development
The Northern Inland Waters Act (SC 1969-70, c. 66)	Indian Affairs and Northern Development
The National Parks Act (RSC 1970, c. N-13)	Indian Affairs and Northern Development
The Dominion Water Power Act (RSC 1970, c. W-6)	Indian Affairs and Northern Development
The Prairie Farm Rehabilitation Act (RSC 1970, c. P-17)	Regional Economic Expansion
The Fund for Rural Economic Development Act	Regional Economic Expansion
The Atlantic Provinces Power Development Act (RSC 1970, c. A-17)	Energy, Mines and Resources
The National Energy Board Act (RSC 1970, c. N-6)	Energy, Mines and Resources
The Resources and Technical Surveys Act (RSC 1970, c. R-7)	Energy, Mines and Resources
The Veterans Land Act (RSC 1970, c. V-4)	Veterans Affairs



As the list indicates, not all federal agencies dealing with environmental and renewable resource matters have been brought together in the new Department of the Environment. For example, the Department of Energy, Mines and Resources with its responsibilities for the Geological Survey of Canada and the Fuels Combustion Research Centre provides an important contribution to the environmental and renewable resource field; the Department of Agriculture carries out environmental research and administers the Canada Committee on Pesticide Use in Agriculture; the Department of Indian Affairs and Northern Development is significantly involved in environmental and renewable resource activities through its responsibilities for northern development and the National and Historic Parks. Other departments having responsibilities in this area include the Department of Regional Economic Expansion; the Department of Finance which funds resource programs and promotes economic development; the Ministry of Transport which administers the Canada Shipping Act containing legislation respecting the prevention of marine pollution; the Department of External Affairs which is responsible for co-ordinating international relations and environmental and resource issues of a multinational complexion; and the Ministry of State for Urban Affairs which is responsible for promoting research into urban environmental problems. Indeed, all departments of government are concerned with the impact of their activities upon the environment.

In addition, there are Crown corporations, boards, and quasi-governmental organizations with an interest in resource development and the environment; these include the Northern Canada Power Commission, the Northern Transportation Company, the National Harbours Board and the St. Lawrence Seaway Authority. The Central Mortgage and Housing Corporation provides funds for municipal sewage treatment facilities. Other agencies, such as the National Research Council, award grants-in-aid of research into resources and environmental problems.

### Section 3.—Federal-Provincial Environmental Programs

Jurisdiction over some natural resources, such as water, is shared by the federal and provincial governments. In other instances where jurisdiction rests with one level of government, such as the federal responsibility for fisheries and provincial responsibility for forests, management practices for one resource may affect the management of others. Consequently, many of the Federal Government's environmental programs are carried out in co-operation with the provinces.

For water resources there are only two areas in which jurisdiction is not shared—the northern territories, and the sea and sea-bed beyond the recognized boundaries of the coastal provinces and out to the limits established by national claim and international convention. Within the boundaries of the provinces, however, both the federal and provincial governments possess significant, and sometimes overlapping, responsibilities.

Given the fact of divided jurisdiction, integrated water management required institutional arrangements within which all jurisdictions, competences and capabilities can be brought together for joint goal setting, planning and operation. A number of these arrangements were established before the formation of the Department of the Environment. New consultative committees have been set up with each province to develop improved understanding of mutual problems and set priorities for joint action. The preparatory work for the Saint John River Basin Agreement between Canada and New Brunswick, under authority of the Canada Water Act, was facilitated by the Canada-New Brunswick Consultative Committee. It is anticipated that more integrated water management programs jointly undertaken by the provincial and federal governments will be agreed to throughout Canada.

On Aug. 31, 1970, a major integrated management study agreement was signed by the Governments of Canada and Manitoba. The purpose of the agreement is to determine the environmental effects of changing the levels of Lake Winnipeg and the stream flows in the Churchill and Nelson river systems caused by the development of the hydro-electric potential of north-central Manitoba.



*A used sand and gravel pit in Ontario became a sparkling lake with grassed and treed shores when the owning company, concerned with the preservation of the environment, resolved to leave behind beauty spots for the enjoyment of the local residents rather than ugly scars on the land. This lake and park area was turned over to the regional conservation authority.*

Two current programs of major importance can be cited to exemplify the Federal Government's concern for the environment. The first program, undertaken in co-operation with the Province of Quebec, is an assessment of potential environmental impact associated with a large hydro-electric and other resource development proposal for the watersheds of southeastern James Bay. The second program is an assessment of the potential environmental impact associated with the proposal for construction and operation of a major oil or gas pipeline and support facilities from the Arctic to Central Canada. Results of these study programs will be incorporated into the design of the development projects.

Co-operative research programs have been developed with industry and other organizations to reduce water pollution from pulp and paper mills. Recipients of the contracts were: the Pulp and Paper Research Institute, Pointe Claire, Que.; the B.C. Research Council, Vancouver; Domtar Limited, Cornwall, Ont.; MacMillan Bloedel Research Ltd., Vancouver; and the Research and Productivity Council of New Brunswick, Fredericton.

Some other examples of established federal-provincial co-operative arrangements include the Prairie Provinces Water Board which apportions water among the three provinces, and the Nelson River Basin Board which is at present undertaking a major water-supply study. There are joint federal-provincial arrangements for the protection and use of other renewable resources as well.

#### Section 4.—International Environmental Programs

The commitment of Canada to international and global resource management is implicit in the many international boards, commissions and other arrangements in which Canada participates.

The International Joint Commission was established to fulfil the provisions of the International Boundary Waters Treaty of 1909 between the United States, Great Britain

and Canada. Three commissioners are appointed by the President of the United States and three by the Government of Canada. The Commission deals with the use, obstruction and diversion of boundary waters and rivers crossing the International Boundary. It conducts investigations on water use problems with international implications and reports its findings with recommendations to both governments.

International boards of control that report to the International Joint Commission include the International St. Lawrence Board of Control concerned with levels of Lake Ontario and the regulation of outflow from the lake; the St. Croix Board, concerned with water levels and supervision of dam construction; the Lake of the Woods Board, the Lake Superior Board, the Rainy Lake Board and the Kootenay Board, all of which are concerned with water levels; the Columbia River Board, concerned with the effects of the Grand Coulee dam; the Souris River Board, concerned with water allocation; and the Niagara Board, concerned with levels of Grass Island Pool and the Lake Erie ice boom. Functions similar to those of the Boards are undertaken respecting the measurement and apportionment of waters of the St. Mary and Milk Rivers. Also reporting to the International Joint Commission are three international engineering boards for the Saint John, St. Croix, Souris and Red rivers. A technical Advisory Board on Air Pollution is concerned with the occurrence of air pollution anywhere along the International Boundary. An Advisory Board on Control of Pollution of Boundary Waters, which reports to the International Joint Commission, is concerned with the connecting channels of the Great Lakes. Other boards concerned with pollution are: the Advisory Board on Pollution Control—St. Croix River, the International Red River Pollution Board, the International Lake Erie Water Pollution Board and the International Lake Ontario—St. Lawrence Water Pollution Board. The International Great Lakes Levels Board is concerned with investigation and study of water levels of international or boundary waters, reporting to the International Joint Commission.

The *International North Pacific Fisheries Commission* composed of members from Canada, the United States and Japan, operates to fulfil the terms of the International Convention for the High Seas Fisheries of the North Pacific Ocean, the objective of which is to achieve maximum sustained yield in non-territorial waters by co-ordination of the studies necessary to determine appropriate application of treaty principles. (See also pp. 687-688.) The *Great Lakes Fisheries Commission*, composed of two national sections, formulates and co-ordinates research programs and recommends programs for the eradication or control of sea lamprey populations. Responsibility for Canada's treaty obligations is shared by arrangement between the Federal Government and the Government of Ontario. The *Northwest Atlantic Commission* operates under the *International Convention for the Northwest Atlantic Fisheries* signed by Canada, the United States, the United Kingdom, France, Spain, Denmark, Portugal, Iceland, Norway, Italy, Federal Republic of Germany, Japan, Poland, Romania and the Soviet Union. All contracting governments are represented on the Commission and panels have been established with jurisdiction over defined areas of particular interest to some signatories. The Commission has no regulatory powers but conducts scientific investigations and recommends measures to maintain stocks of fish. (See also p. 688.) The *North Pacific Fur Seals Commission* operates under the *Interim Convention on Conservation of North Pacific Fur Seals* signed by Canada, the United States, Japan and the Soviet Union. It undertakes research, recommends enforcement measures required to eliminate pelagic sealing on the high seas, and oversees the apportionment of skins from the Pribilof, Commander and Robben Islands. (See also p. 688.) The *International Whaling Commission*, composed of representatives of Australia, Argentina, France, South Africa, the United States, the United Kingdom, Canada, Norway, the Netherlands, Iceland, Japan, Panama, Mexico, Denmark and the Soviet Union, has power to amend whaling rules and regulations of the International Convention, and to recommend new regulations with respect to the conservation and use of this resource. The *Roosevelt-Campobello International Park Commission* is concerned with the administration and



development of the Campobello Island estate of the late Franklin D. Roosevelt as an international park. The *International Great Lakes Study Group* is a vehicle used by both Canada and the United States for the exchange of information on research activities on the Great Lakes. Its Co-ordinating Committee is responsible for the compilation and computation of hydrologic and hydraulic data of the Lakes Basin. The *International Hydrologic Decade*, composed of 108 participating countries, was created to facilitate a better understanding of hydrologic phenomena to allow prediction of the results of development of water resources, thus permitting better management. Canada is a member of the Co-ordinating Committee and is responsible for the co-ordination of the International Field Year for the Great Lakes. Canada is also a member of the international working groups on water balance, representative and experimental basins, and hydrological problems related to water quality; there are International Hydrologic Decade Committees in eight provinces. To the end of 1970, there were 219 active and completed projects sponsored by the Decade, involving federal, provincial and university personnel. The *International Field Year for the Great Lakes* was established under the auspices of the International Hydrologic Decade. The International Field Year is an intensive study of the Lake Ontario basin involving a large number of Canadian and United States federal, provincial and state agencies and universities. A Steering Committee is guiding the planning program. This study will involve the examination of problems associated with the geology, limnology, hydrology, meteorology, biology and chemistry of the lake and its basin.

The *Canadian National Committee for Geography* of the International Geographical Union is responsible for establishing an organizing committee which will organize and host the 22nd International Geographical Congress in 1972. The Union was established to promote further international co-operation in the field of geography. The Congress is held every four years to bring all members together to study various problems relating to global aspects of geography. The secretariat of the Canadian Committee is located in the Department of the Environment.

The *International Commission on Irrigation and Drainage*, of which Canada is a member, meets every three years to pool world knowledge on specific, current problems in irrigation, drainage and flood-control engineering.

Canada has been a member of NATO since its inception and is also a member of the NATO-sponsored *Committee on Challenges of the Modern Society* (CCMS). The Committee's basic purpose is to consider specific problems relating to the environment and human interaction. To accomplish this, the work of the CCMS is carried out through a series of pilot projects. Canada is a member of the following:—

- (a) **DISASTER ASSISTANCE PILOT PROJECT**—Canada participates in two subsections: Flood Plain Management and Earthquake Hazard Reduction.
- (b) **ROAD SAFETY**—Canada is responsible for the subsection entitled Alcohol and Highway Safety.
- (c) **COASTAL WATER POLLUTION**—Canada and Belgium share in this pilot study undertaken to define criteria and set international standards for pollution levels in open waters, particularly oil pollution.
- (d) **INLAND WATERS POLLUTION**—Canada is the pilot country for this project and is responsible for the administration of its program. Its aim is to develop comprehensive basin plans for inland water pollution-control programs in basins with divided jurisdiction. Canada has designed the comprehensive river-basin planning and management program for the Saint John River as a case study. The study was divided into four sections that are headed by Canada or other co-pilot countries: Water Quality Planning (Canada-France); Simulation Models in Decision-Making (Belgium); Economic Instruments (France); and Process for Setting Water Quality Criteria (Canada).

The *Organization for Economic Co-operation and Development* established an Environment Committee of which Canada is a member. A number of Sector Groups were set up to accomplish the objectives of the Committee in various fields of environmental problems. These include:

- (a) **THE URBAN ENVIRONMENT**—This Sector Group will attempt to suggest measures which could lead to reduction in pollution levels in the urban environment and will attempt to improve management practices relating to the protection and improvement of the urban environment.
- (b) **THE UNINTENDED OCCURRENCE OF TOXIC CHEMICALS**—This Sector Group will look into the possibility of reducing the number of occurrences of toxic chemicals being introduced into the environment, and the relative costs and effects of the various methods utilized.
- (c) **AIR QUALITY**—This Group will investigate and define problems of air pollution and suggest policies and actions for pollution control and air-quality maintenance as well as government implementation schemes of the foregoing.
- (d) **WATER**—This Group will investigate and define the problems of managing water resources and suggest measures for the improvement and preservation of water quality by various management methods and the socio-economic effects of such schemes.

Several *ad hoc* Groups were established to study the following problems:—

- (a) **IMPACT OF THE MOTOR VEHICLE**—This Group hopes to identify the critical environmental hazards caused by the motor vehicle and determine what methods may be used to rectify them.
- (b) **POLLUTION BY THE PULP AND PAPER INDUSTRY**—This Group will try to evaluate present conditions of environmental deterioration that may be attributed to the pulp and paper industry and will examine various pollution abatement techniques currently applied and their socio-economic effects.

The OECD has established a Steering Group on Eutrophication made up of four Study Groups in which Canada has membership or membership plus chairmanship. Canada's role on three of these Study Groups is as follows: Study Group on Detergents (membership); Study Group for Agricultural Nutrient Contributions (membership); and Study Group on Measuring and Monitoring of Lakes for an International Project (membership plus chairmanship).

Canada has established a Canadian National Committee which is responsible for the co-ordination and implementation of all *International Biological Program* projects in which Canada has active participation.

Canada is a member of, and has a strong supporting role in, the *Preparatory Committee* for the United Nations Conference on the Human Environment to be held in Stockholm in 1972. The Conference, dealing with all aspects of the human environment, will attempt to define and illustrate current and emerging problems and propose solutions thereto. Participation in the activities of the Preparatory Committee will involve Canadian representation on a number of Working Groups for the purpose of defining program content, as well as the promotion of specific topics and themes prior to the Conference. The latter Working Groups are those concerned with the *Declaration of the Human Environment, Marine Pollution, Monitoring and Surveillance, Conservation of Areas of Natural, Cultural, and Historical Significance, and Soil Preservation and Reclamation*.

Canada plays an active role in the *Inter-Governmental Maritime Consultative Organization*, a specialized agency of the United Nations concerned mainly with maritime affairs. Canada is also a member of the Assembly or plenary body and of the Council (the 18-member governing body) as well as the Maritime Safety Committee. The latter includes the Sub-committee on Marine Pollution on which Canada has representation.

An international conference on marine pollution will be held in 1973 for the purpose of preparing a suitable international agreement for placing restraints on the contamination of the sea, land and air by ships or other equipment operating in the marine environment.

Canada, with the world's longest coastline (which borders on three oceans), is accordingly involved in intensive preparations for the *1973 Law of the Sea Conference*. The concern of Canada is the preservation of marine environment in all its aspects. This must be effected by an elaboration of international controls on ocean dumping, exploration and exploitation of the sea-bed, and entry of oil and other pollutants. Also to be regulated are marine scientific research, the use of the living resources of the sea, and the preservation of unique islands, atolls, wetlands and subsurface areas. Mechanisms for implementation of agreements and for compensation of victims of marine pollution are being worked out. In addition, the advisability of reorganizing international agencies concerned with monitoring and surveillance and basic research is being discussed.

Canada is involved in several monitoring programs sponsored by one or more of the United Nations specialized agencies—

- (a) **MAN AND FOOD**—All monitoring programs, such as those employed by Canada to monitor foods and man for residues build-up, submit their results to the *Food and Agriculture Organization* and the *World Health Organization*.
- (b) **ATMOSPHERE**—Canada is a member of the *World Weather Watch* which forecasts weather patterns, etc., as well as of the *Background Air Pollution Network* which is responsible for the monitoring of atmospheric variables. Canada has established 10 stations in this network. Canada is also an observer in the OECD study of the *Long Range Transport of Air Pollutants* currently being run by the OECD European members.
- (c) **HYDROSPHERE**—Canada chairs the *Working Group for the Integrated Global Ocean Station System* (IGOSS) and the *Group of Experts on the Scientific Aspects of Marine Pollution* (GESAMP). Both of these Groups are concerned with the extent and long-range effects of marine pollution. GESAMP is sponsored by UNESCO through the *Intergovernmental Oceanographic Commission* (IOC). There are also two Intergovernmental Working Groups—the *Intergovernmental Working Group on Marine Pollution* and the *Intergovernmental Working Group on Monitoring and Surveillance*—established for the period preceding the United Nations Conference on the Human Environment, which are seeking to identify those substances that should be monitored in the marine environment. Canada is also a member of the *International Atomic Energy Agency* which is monitoring the oceans and the atmosphere in regard to the level of radioactivity present and the amount of radioactive substances in these two spheres.

Canada has water-quality monitoring and surveillance programs on lakes, rivers and streams crossing the International Boundary, conducted under the auspices of the International Joint Commission (pp. 144-145). Canada is a member of the *Committee on the Peaceful Uses of the Sea-Bed and the Ocean Floor*, concerned with questions relating to marine pollution caused by the exploration and exploitation of marine mineral resources beyond the limits of national jurisdiction. The Committee has sought proposals for the establishment of an international body to regulate the exploitation of the sea-bed.

UNESCO has developed a program entitled "Man and the Biosphere" which will seek to develop the scientific basis for the rational use and conservation of the resources of the biosphere. Canada has established a National Committee to co-ordinate all aspects of this program and sits on the International Co-ordinating Council with representatives from 24 other member States and representatives from the United Nations Food and Agriculture Organization, World Meteorological Organization, International Committee for Scientific Unions, and International Union for the Conservation of Nature and Natural Resources.



# CHAPTER XI.—AGRICULTURE

## CONSPECTUS

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*The interpretation of the symbols used in the tables throughout the Year Book will be found on p. vii of this volume.*

## Section 1.—Agricultural Trends and Highlights in 1970 and 1971\*

Agriculture is a large and important industry in Canada. It accounts for well over one quarter of the country's economic activity. It produces products surplus to domestic needs which are exported to world markets and earn about 20 p.c. of Canada's foreign exchange. Canada is the world's fourth largest exporter of agricultural products.

The individual farmer, as both a primary producer and a user of the end products of agriculture, plays an integral role in Canada's economic structure. Through his farming efforts, he provides increasing quantities of food for a growing urban population, and through substantial exports, he earns foreign exchange which creates a higher standard of living for Canadians. He also, through his expenditures on goods and services, contributes extensively to the well-being of other industries and businesses. Farm purchases of machinery and other farm-related goods have assisted in the expansion of industrial employment through the years. The farm machinery and feed processing industries particularly are directly influenced by farm prosperity but many jobs in petroleum, rubber, automotive, hardware, paint, chemical and electrical plants also depend on farm customers. In addition, numerous manufacturing plants across the country are engaged in processing goods produced on Canadian farms.

However, although agricultural production has continued to climb, both the number of farms and the farm labour force have declined over the past decade, affected by increased farm mechanization and marketing trends. The number of Canadian farms dropped from 481,000 at the date of the 1961 Census to 431,000 in 1966; by 1980, it is expected that there will be only about 315,000 farms in Canada. In 1970, the total employment in Canadian

\* Prepared (August 1971) under the direction of S. B. Williams, Deputy Minister of Agriculture, Ottawa.

agriculture, including family and hired help, was 511,000, 6.5 p.c. of the total employed labour force in Canada; this was down 24,000 from 1969 and was 170,000 fewer than in 1961. These declines, it should be noted, are mitigated by the fact that today one farmer feeds an estimated 40 people from his farming efforts; his grandfather fed about five at the beginning of the century.

Farm production was generally higher in 1970 than in 1969. The increase came mainly from larger barley, rapeseed, soybean and flaxseed crops. The 1970-71 rapeseed crop more than doubled the 1969 production, the flaxseed crop almost doubled and the soybean crop set a new production record. There were smaller increases in the potato crop and in total livestock slaughtered. Among livestock, only the hog slaughter increased—by slightly more than 1,300 head over 1969. There were reductions in the wheat, oat and apple crops.

Although production was higher, farm cash receipts declined in 1970 for the third consecutive year. At \$4,108,600,000, they were \$73,500,000 less than in 1969. These receipts include all cash revenue from the sale of farm products, including Canadian Wheat Board participation payments on the previous years' grain crops, net cash advances on farm-stored grain in Western Canada, and deficiency payments made by the Agricultural Stabilization Board. The drop was attributable mainly to lower returns from wheat sales and lower Canadian Wheat Board participation payments.

Farmers received 4.3 p.c. more for their livestock and livestock products during 1970. Receipts from sales of dairy products were up, and receipts from poultry and eggs were lower. Receipts from wheat, barley, oilseeds and other crops were higher but those from oats were down slightly. Farmers received 34 p.c. of their income from crop enterprises and 63 p.c. from cattle and calves, hogs and dairy products. The remainder was accounted for by sales of rye, sheep and lambs, other livestock and livestock products, forest and maple products and supplementary payments.

In 1970, farm operating expenses and depreciation charges reached a record total of \$3,582,000,000, an amount \$153,000,000 above the previous record of \$3,429,100,000 set in 1969. Taxes on owned land and buildings reached a high of \$188,800,000 in 1970. Higher wages and more hired help pushed the farm labour bill to \$339,300,000, about \$37,000,000 above 1969. Machinery expenditures reached a record \$556,200,000, which was more than \$2,000,000 above 1969 expenditures, and feed costs rose to \$620,500,000 from \$554,500,000.

Farmers continued to invest in real estate, livestock, machinery and equipment but the rate of investment followed the downward trend that began in 1967. The number of loans approved by the Farm Credit Corporation in the year ended Mar. 31, 1971 was down by nearly 30 p.c. from the previous year. Although the average size of loan approved during the year was higher at \$27,985, the total amount of loans approved recorded a decrease of 28 p.c. at \$115,213,300. There was a significant decrease in the amount of funds lent to buy land to enlarge farm units and a corresponding increase in the percentage of funds used to make improvements to land, to buy livestock and to pay debts. These trends reflected the response of farmers to their marketing and economic situation during the year.

It is expected that farms will continue to increase in size but decrease in number during the remainder of the 1970s. More farms will likely be organized as two-man or three-man operations and capital and credit requirements per farm will increase significantly. Growing population and higher incomes are expected to create strong domestic markets for food and other farm products, particularly beef, pork and poultry, and also to increase the demand for fruits, vegetables and cheese. However, the proportion of disposable income used to buy food will probably continue its downward trend. In 1969, only about 15 p.c. of income was so used.

### **Agricultural Highlights in 1971**

Early in 1971, the Canadian Dairy Commission and the Quebec and Ontario milk marketing agencies signed an agreement designed to give the dairy industry new impetus toward solving its problems; the agreement brought into effect a market-sharing quota system for industrial milk in Ontario and Quebec, the provinces that, together, produce

80 p.c. of the Canadian total. It was also announced that *Canadex*, a technical information system providing agricultural extension specialists with up-to-date information about Federal Government agricultural activity, was in operation within the Canada Department of Agriculture; a new strawberry variety, *Totem*, had been developed for use in the northwest Pacific region; a new oat variety, *Random*, had been licensed; and that the wild garlic weed had been found for the first time in Canada at two locations in Ontario.

At the beginning of February, the Minister of Agriculture announced that the Canadian Dairy Commission would increase its purchase prices on skim milk powder and cheddar cheese. These increases, the first in four years, were designed to permit improved market prices to producers for manufacturing milk. Also in February, it was announced that federal assistance would be given to the British Columbia apple industry, hard hit by storage losses on the 1969 crop. Amendments were made to the Crop Insurance Act extending coverage to all land that cannot be seeded or planted because of excess ground moisture, weather or other agricultural hazards. A new alfalfa variety, *Dryland*, was released, and the *Elite* seed potato program, designed to provide the greatest possible freedom from bacterial ring rot and virus diseases of potatoes, went into full operation. Later in the month, the Government unveiled a three-year, \$40,000,000 program offering grain producers in the Prairie Provinces \$10 an acre to switch crop and summerfallow acreage into forage production. At the same time, the effective date for the new Canada Grain Act, passed by Parliament late in 1970, was set at Apr. 1; this Act enables the Governor in Council to revise grain grades after advance notice, and allows for a greater degree of flexibility within the grain-handling industry. Changes were also announced in regulations to prevent the spread of two livestock diseases into Canada from the United States—*anaplasmosis* and *bluetongue*.

On the first of March, the initial prices to be paid by the Canadian Wheat Board for purchases of wheat, barley and oats for the 1971-72 crop year were announced. This was the first time such announcement was made in advance of spring seeding and it was done to assist farmers with their long-range plans. At the same time, a newsletter was sent to all Canadian Wheat Board quota delivery permit holders, setting out the prospects for marketings in the coming year and estimating the minimum quotas likely to be established for wheat, barley and oats in the 1971-72 crop year, as well as acreage guidelines for the major crops. Also in March, a new durum wheat, *Wascana*, a new creeping red fescue variety, *Durlawn*, and *Mayak*, a new Russian wild ryegrass variety, were released. Three Canada Department of Agriculture scientists won the top award in food engineering at an international competition in Paris, France; their winning entry was a product that packs the full flavour and aroma of apple juice into a powder.

At mid-month, revised proposals to stabilize cash receipts for Prairie grain farmers were tabled in the House of Commons. First outlined in October 1970, these proposals were modified following discussions with farmers, farm organizations, and Prairie Province governments. In late March, the federal Minister of Agriculture met with the provincial Ministers of Agriculture to discuss a proposed nationwide farm adjustment program, which would assist farm people to develop commercially viable farm businesses and help other farm people to take advantage of non-farm income, employment and retirement opportunities. A March "mini outlook" was prepared by the Department's Economics Branch which forecast a "generally bright" agricultural picture for 1971-72. Details of the Feed Freight Assistance program were announced for the year commencing Apr. 1. Rates of assistance were maintained for 1971-72 at the same level as in 1970-71 in most areas of Eastern Canada and British Columbia. Changes were announced for those areas where sufficient grains are produced to meet the requirements of livestock and poultry feeders.

On Apr. 1, there was a drop in interest rates paid by farmers for Farm Credit Corporation loans to  $7\frac{3}{4}$  p.c. on long-term mortgage loans, a drop of  $\frac{3}{4}$  p.c. from the rate of the previous six months. Further research confirmed the Canada Department of Agriculture decision to permit continued use of the weed killer 2,4,5-T to control brush on rangeland, forests and rights-of-way, while suspending recommendations for use on lawns and recreational areas. *Kane*, a new high forage yielding alfalfa, and *Tempest*, a new buckwheat



Cattle raised on a foothills ranch in southern Alberta are moved to a feedlot near Fort Macleod. It took 18 hours to drive this herd over the ten-mile route.



variety, were licensed, as were two new rapeseed varieties, *Span* and *Zephyr*. A Canada Agriculture scientist at Lethbridge announced his development of a green-shell bean, which could replace imported lima beans used in Canadian frozen vegetable packs and canned soups. A new research institute, the Chemistry and Biology Research Institute, was formed to replace the Cell Biology Research Institute and the Analytical Chemistry Research Service of the Department.

At the end of April, a Bill was placed before Parliament which would provide for the discontinuance of the Prairie Farm Assistance Act levy on all grain marketings after July 31, 1971, since the extension of crop insurance to all areas of the Prairies would do away with the need for such levy. Later (mid-July), the Minister of Agriculture stated that the Prairie Farm Assistance Regulations were being amended to suspend, temporarily, the collection of the 1-p.c. levy on sales of grain marketed by western farmers. This suspension was made effective Aug. 1, pending final disposition of the legislation before Parliament to discontinue the levy and phase out of PFAA by the end of the 1972-73 crop year.

In mid-May, plans were announced for the expansion of the Canada Agriculture Research Station at Lennoxville, Que.

In early June, details were announced of a purchase program to stabilize egg prices by which the Agricultural Products Board would buy eggs by weekly tender and process them into products such as mélange and powder. The intent of the plan was to give assistance to egg producers who had been receiving very low prices as a result of increased egg supplies and disruptive marketing practices. In mid-June, the new \$3,600,000 Canada Agriculture Research Station at Ste. Foy was officially opened. This is the largest federal agricultural research station in Quebec and deals mainly with the breeding and improvement of cereal and forage crops.

At the beginning of July, it was announced that a new variety of winter wheat, *Sundance*, had been licensed and that a new pear variety, *Sierra*, had been developed for home gardens. On July 9, it was announced that import permits had been issued to 569 applicants to import 896 cattle into Canada from Europe during 1971. For the first time, cattle from Germany and Austria were eligible under the program; as in other years, cattle importations were permitted from France, Switzerland and Italy. Semen from five of Finland's best Ayrshire bulls was imported during the summer and offered to owners of about 70 Canadian Ayrshire herds as part of a long-term project to evaluate the relative merits of Finnish and Canadian Ayrshire bulls. This was a large and ambitious project that could have a significant impact on the future of the Ayrshire dairy breed in this country.

At the end of July, new import requirements were announced to prevent the importation into Canada of horses infected with swamp fever.

On Aug. 16, increases were announced in the support prices for butter, skim milk powder and cheese. The support prices for butter and cheddar cheese went up three cents and that for skim milk powder two cents. *Mayak*, the second variety of Russian wild ryegrass released by the Canada Agriculture Research Station at Swift Current, Sask., was licensed.

On Sept. 1, the Minister of Agriculture held a meeting with representatives of national farm organizations, national commodity groups, food processing councils and other interested parties to discuss the United States surtax on certain Canadian agricultural products. A new soft white winter wheat variety, *Fredrick*, was licensed for sale in Canada. It was announced that five new tomato varieties and two new apple varieties had been developed by Canada Agriculture scientists.

On Oct. 1, the Minister of Agriculture announced approval of plans to assist distributors and producers of unprocessed agricultural products affected by the surtax, the programs to be developed on a commodity basis by the Agricultural Stabilization Board. The first action taken under this program was the announcement in mid-October of a turkey purchase program, under which the Board was authorized to purchase turkey to be canned and forwarded to the World Food Programme.

In mid-October, the Minister of Agriculture withdrew the proposed Bill to stabilize cash receipts for Prairie grain farmers. Payments were made to the Canadian Wheat Board and wheat producers under the Temporary Wheat Reserves Act.

On Oct. 19, it was announced that construction would start immediately on a new \$11,500,000 laboratory for animal diseases research, to be located in the Department's Greenbelt Farm, south of Ottawa.

In mid-October, it was announced that a patent had been applied for a formula developed by scientists at the Canada Agriculture Plant Research Institute that would improve the water uptake of cut roses, thus extending their life. During the elapsed months of 1971, Japan became the leading customer for Canadian honey, the result of an aggressive sales effort by the Canadian honey industry and help from the Federal Government in the form of analytical quality tests. It was also announced at mid-month that Canadian exports of dairy and beef cattle semen sky-rocketed during 1970; the number of vials exported increased by more than 475,000 over 1969 and the value by over \$6,000,000.

On Oct. 20, details of a major loan program for the construction of buildings and facilities by exhibition commissions were released. The program was part of the Federal

Government's program of economic stimulation and provided \$10,000,000 to stimulate construction during the winter of 1971-72. The loans were for multi-purpose buildings to be used year-round for a variety of community activities.

On Dec. 6, a \$150,000,000 small farms development program was announced to assist the small farmer who wants to stay in farming but lacks sufficient acreage to develop a profitable business. Through a land transfer program, farmers will be able to use special credit facilities to buy the land they require and technical assistance will be provided under a federal-provincial agreement. The program will also benefit those farmers who choose to give up farming. Those who sell small farms will qualify for an adjustment grant to be added to the selling price of their land but they will have the option of retaining their farm home and an appropriate surrounding piece of land if they so wish.

## Section 2.—Federal Government in Relation to Agriculture\*

The Canada Department of Agriculture dates from Confederation in 1867. It was established as an outgrowth of the Province of Canada's Bureau of Agriculture, which was set up in 1852. The Department's authority lies in the British North America Act, 1867, which states, in part, "in each province, the legislature may make laws in relation to agriculture in the province" and "the Parliament of Canada may from time to time make laws in relation to agriculture in all or any of the provinces; and any law of the legislature of a province relative to agriculture, shall have effect in and for the province as long and as far as it is not repugnant to any Act of the Parliament of Canada".

A Department of Agriculture with a Minister of Agriculture at its head was accordingly established as part of the Government of Canada, and departments of agriculture headed by provincial Ministers were also set up by the provincial governments. In the Yukon and Northwest Territories, agriculture is of very minor importance and is administered by the federal Department of Indian Affairs and Northern Development.

### Subsection 1.—Services of the Canada Department of Agriculture

Activities of the Canada Department of Agriculture (CDA) cover three broad areas: research, promotional and regulatory services, and assistance programs. Research aims at solving practical farm problems, by applying fundamental scientific research to all aspects of soil management, agricultural engineering, and crop and animal production. Promotional and regulatory services attempt to control and eradicate crop and livestock pests, and register chemicals and other materials used for these purposes. Also included are inspection and grading of agricultural products and the establishment of crop and livestock improvement policies. Assistance programs cover some of the sphere of price stability, emergency relief, crop insurance, compensation, and income security in the event of crop failure.

The Department has five main programs—Administration (including Economics), Research, Production and Marketing, Health of Animals, and the Canadian Grain Commission (see Index). Its organization also includes a number of smaller units—the Agricultural Stabilization Board (p. 536), the Agricultural Products Board, Crop Insurance (p. 537), and the Prairie Farm Assistance Administration (p. 541). The Canadian Dairy Commission (p. 537) and the Canadian Livestock Feed Board (p. 542) operate independently but are closely allied with the Department and are directly responsible to the Minister of Agriculture. The Farm Credit Corporation (p. 540) is a Crown agency which also reports to Parliament through the Minister of Agriculture.

**Research Branch.**—The Research Branch is responsible for research on agricultural production problems although some phases of research are carried on by the Economics

\* Prepared (August 1971) under the direction of S. B. Williams, Deputy Minister of Agriculture, Ottawa.



Branch (p. 534), the Health of Animals Branch (p. 533), and the Grain Research Laboratory of the Canadian Grain Commission (p. 533). The activities of the Branch are carried out at 26 Research Stations, 10 Experimental Farms, eight Research Institutes and two Research Services, and at a number of substations and project farms in all 10 provinces and in the Yukon and Northwest Territories. The headquarters of the Branch are in Ottawa where the Executive provides general direction and co-ordination of the program. Approximately 800 professional staff are employed, representing most of the biological and physical sciences that can contribute to the solution of agricultural production problems.

The total program of the Branch is problem-oriented, with specific objectives and goals for the Branch as a whole and relevant objectives and goals for each establishment. With the increasing complexity of modern agricultural production and the competitive pressures that exist, efficiency and reduced cost per unit of production become increasingly important. Therefore, emphasis in the research program continues to be on development of improved varieties of plants and animals, on production practices that will maximize yields and reduce costs, and on methods of controlling insects, diseases and weeds that lower production.

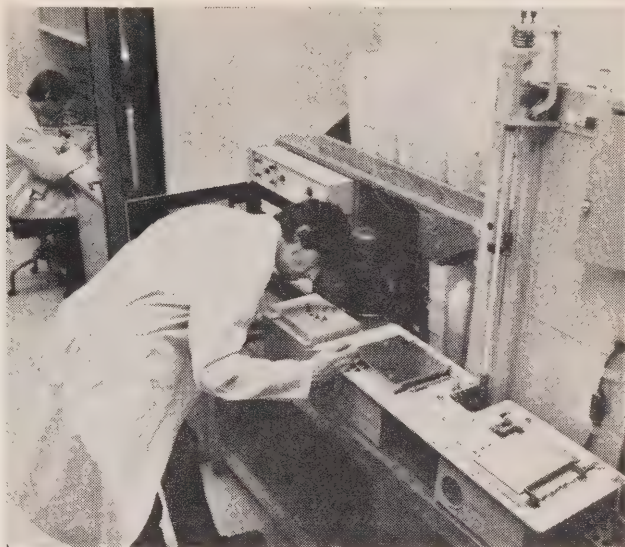
Through the years, the Research Branch plant breeders have produced new varieties of cereal, forage and horticultural crops to meet new market requirements and reduce the hazards of production. Thus, the search has continued for even better material to overcome the limiting factors of a northern climate including a short growing season, frost hazards, drought, insect pests and diseases. At the same time, efforts have been made to develop plants that will respond favourably to long days and the high light intensity of many parts of Canada. As an aid in identifying climatic effects on crops and providing a basis for forecasting possible success with new crops in an area, agrometeorology has become an increasingly important factor. Particular attention has been given in recent years to new crops and outstanding success has been achieved in the development of new varieties of rapeseed with oil quality-tailored to specification. More than 80 new varieties of crops have been developed and put into commercial production in the past 10 years, including almost all of the cereal crops produced in Western Canada.

Feed grains and forage crops have received particular attention to provide for feeds as a basis for economical livestock production. The application of genetics to animal improvement and the increasing of knowledge of the nutritional requirements of animals have been the two main activities in direct support of improved livestock production. More recently, increasing emphasis has been given to developing procedures for improved reproductive efficiency of all classes of stock, since low reproductive rate is a seriously limiting factor. Emphasis is also being given to the disposal of animal wastes, a problem that is increasing in severity with the development of larger livestock concentrations.

The battle to control crop diseases and pests is being fought aggressively. Although chemicals have proved to be a potent weapon, their contribution to the total pollution problem has caused particular concern and methods of biological control are therefore receiving increased attention. The development of resistant varieties, the use of parasites and predators, and the destruction of insects by non-chemical means are all in the arsenal of the research workers. In this, as in most other aspects of agricultural research, the team or inter-disciplinary approach is being used more and more.

Increased output per man, in which agriculture has made outstanding advances in the past quarter-century, has been made possible through farm mechanization on a large scale. To assist in continuing this advance, the Branch has expanded its agricultural engineering staff to deal with specific problems and to provide for strengthened liaison with universities and provincial extension officers. The Branch conducts a continuing soil survey in all provinces in co-operation with provincial departments of agriculture and with faculties of agriculture in universities and also conducts an extensive program of research on soil fertility and cultural practices, working toward the objective of using the agricultural soils most effectively and of conserving them for the future.

Scientists at the new CDA Research Station at Ste. Foy, Que., are also concerned with breeding and improvement of crops; this ultra-modern research structure contains laboratories for research on plant physiology, biochemistry, phytoprotection, genetics, plant breeding and soils.



In addition to independent research done by the Branch staff, considerable co-operative work is undertaken with staff of agricultural faculties and provincial governments. Furthermore, through operating and extramural grants, support is given to research workers at the universities. Close liaison is maintained with these agencies to avoid unnecessary duplication of programs and special attention is given to maintaining contact with provincial extension officers. Branch establishments across the country are represented on provincial committees concerned with making recommendations on crop varieties, fertilizers, cultural practices, pest control, animal management, and other problems. Such collaboration ensures that research results of immediate practical value are made available to extension officers and to producers as quickly as possible.

**Grain Research Laboratory.**—The amended Canada Grain Act passed in 1970 established the Canadian Grain Commission, the function of which is to “undertake, sponsor and promote research in relation to grain and grain products and, in so doing, ... maintain an efficient and adequately equipped laboratory”. The Grain Research Laboratory provides the scientific services required in the administration of the Canada Grain Act, conducting a comprehensive program of basic and applied research relating to the quality of Canadian cereal grains. It carries out extensive studies annually of the quality of the new crop cereals and maintains a continuous check of the quality of cereal grains as they move forward from the farm to marketing positions.

With the introduction of the protein factor in segregating wheat grades, the laboratory extended and decentralized its protein-testing facilities, and is now able to test samples drawn from carlots of wheat and make the results known to the terminal elevator operators prior to unloading cars at the terminals.

The Laboratory also assists in testing the quality of cereals developed by plant breeders, in order to ascertain whether or not the variety is worthy of licensing.

**Health of Animals Branch.**—This Branch administers the Animal Contagious Diseases Act, the Meat Inspection Act and the Humane Slaughter of Food Animals Act, and operates laboratories for the study of animal diseases. Contagious diseases of animals are controlled through preventive measures of inspection and quarantine of imported

livestock and restricted commodities such as meat, farm products and other possible sources of infection; through conducting disease eradication programs, notably of bovine tuberculosis, brucellosis and Johne's disease; through the control and eradication of serious animal diseases when outbreaks occur; and through inspection and certification as to health of livestock for export.

The Animal Pathology Division consists of the Animal Diseases Research Institute at Hull, Que., the Animal Diseases Research Institute (Western) at Lethbridge, Alta., and seven other laboratories; these establishments conduct research and investigations on diseases of animals and produce the biological products required in the control programs of the Branch. The Division also provides diagnostic services for diseases of domestic and wild animals; provides a consultation service regarding veterinary biologics and other agents used in the control of animal diseases; and assists in training departmental officers and technicians as well as veterinarians from other lands. The Meat Inspection Division conducts ante-mortem examinations; ensures the application of strict humane slaughter regulations for all food animals; conducts continuous post-mortem examinations of animals slaughtered at packing plants in which they operate; and ensures maintenance of sanitary standards during processing of the products, accurate labelling, and the proper kind and use of ingredients and preservatives—all in an effort to guarantee the marketing of wholesome, unadulterated meats and meat food products.

**Economics Branch.**—The Economics Branch advises the Minister and senior officials of the Department on the economic implications of proposed and existing agricultural policies and programs. It is divided into three Divisions—Research, Farm Management, and Marketing and Trade—and includes an Economic Policy and Planning Secretariat. The Branch conducts research on the economics of production, marketing and resource use in agriculture. Market information on supply and demand trends and prospects is collected, interpreted and distributed throughout Canada and the world. The Branch develops and administers programs for agricultural adjustment and farm management in conjunction with the provinces; CANFARM headquarters are located in Guelph and regional research offices are located in the Maritimes, the Prairie Provinces and British Columbia.



*CDA scientists examine their plots of oat varieties grown in the Imperial Valley of southern California. Canadian plant breeders are involved in breeding programs for cereal crops in that area and in the Yaqui Valley of Mexico where two crops a year may be grown and development of new varieties speeded up and where they may experiment with far more breeding materials under greenhouse conditions.*



**Production and Marketing Branch.**—The Production and Marketing Branch conducts many of the promotional and regulatory functions of the Department. Six specialized divisions administer legislation and policies in the production and marketing of livestock, poultry, fruits and vegetables, dairy products and plant products, and policies in connection with the control of disease in plants.

The *Livestock Division* administers legislation dealing with the grading of meat, wool and fur, with the registration of livestock pedigrees, with performance testing of cattle and hogs and with the supervision of racetrack betting. Other activities include the promotion of livestock improvement and the compilation of market statistics. The *Poultry Division* carries out the policies of the national poultry breeding program, including Record of Performance for poultry and hatchery inspection, and administers the regulations for the grading of poultry products. The *Fruit and Vegetable Division* administers legislation having to do with the grading of fruits and vegetables in both fresh and processed form, maple products and honey. The Division is responsible for the licensing of inter-provincial and international dealers and brokers who deal in fresh fruits and vegetables. The *Dairy Division* administers legislation covering grades and standards for dairy products, including butter, cheese, concentrated milk products and ice cream. The *Plant Products Division* administers Acts and regulations respecting seeds, feeds, fertilizers and pest-control products, conducts field inspections and maintains regional testing laboratories. The *Plant Protection Division* is responsible, under the Destructive Insect and Pest Act, for safeguarding against the introduction of serious plant insects or diseases into Canada or their spread in Canada, for certifying freedom from disease and pests in plant exports, and for seed potato certification.

**Administration and Information.**—The Financial and Administration Branch provides central advisory and specialized staff services for the financial and business management of the Department and advises the Senior Executive in developing financial and administrative policies and programs. Personnel policies and programs for approximately

A botanist evaluating new cultivars of tall bearded iris at the Central Experimental Farm in Ottawa. The study of ornamental horticulture is included in the Plant Research Institute's endeavour to increase knowledge of plants and their response to the environment in which they grow.



10,000 employees of the Department, including scientific and professional groups, technical, administrative and other support staff at various locations across Canada, are conducted by the Personnel Administration Branch.

The Information Division gathers and disseminates information on the research, development and regulatory work of the Department, giving service to the news media, to agricultural extension workers and directly to the public through publications, press and radio releases, television material, motion pictures and exhibits.

### **Subsection 2.—Farm Assistance Programs**

Basic to the concept of Canada's national agricultural policy is the premise that a stable agriculture is in the interests of the national economy and that farmers as a group are entitled to a fair share of the national income. In pursuit of these objectives, the Department of Agriculture has carried on, over a long period, programs designed to aid agriculture through the application of scientific research and the encouragement of improved methods of production and marketing. Over the years, as conditions have warranted, programs have been initiated to deal with special situations such as the Prairie Farm Assistance Act (p. 541) to mitigate the effects of crop failure, Feed Grain Assistance Regulations (p. 542) to assist in the movement of western feed grains to Eastern Canada and British Columbia, and other programs recently transferred to the new Department of Regional Economic Expansion—the Maritime Marshland Rehabilitation Act to save valuable soil in the Maritime Provinces, and the Prairie Farm Rehabilitation Act (p. 519), concerned primarily with combating drought in the agricultural areas of the Prairie Provinces.

Although much has been accomplished and is still being accomplished by these measures, changes in the past two decades have dictated the need for a different approach to some problems. Large-scale mechanization and, in some segments of the industry, automation reduced manpower requirements very significantly; the number of farms declined but the size of farms increased; marketing and income problems took different forms; and a decline in some rural communities occurred together with problems of increasing regional disparity. Legislation enacted to meet these situations includes price support (Agricultural Stabilization Act), dairy market and producer income stabilization (Canadian Dairy Commission), crop insurance (Crop Insurance Act), Agricultural and Rural Development Act (ARDA) and Fund for Rural Economic Development (FRED), feed grain assistance (Livestock Feed Assistance Act) and credit facilities (Farm Improvement Loans Act, Farm Credit Act and Farm Syndicates Credit Act). These measures, with the exception of the ARDA and FRED programs (see Chap. XXIII, Sect. 7, Subsect. 2) are administered by the Department of Agriculture.

The latest form of farm assistance to be initiated is the Small Farms Development Program, announced Dec. 6, 1971 (see p. 543).

**Agricultural Stabilization Act.**—The Agricultural Stabilization Act, 1958 (RSC 1970, c. A-9) established the Agricultural Stabilization Board and repealed the Agricultural Prices Support Act, 1944. The Board is empowered to stabilize the prices of agricultural products in order to assist the agricultural industry in realizing fair returns for labour and investment, and to maintain a fair relationship between prices received by farmers and the costs of goods and services that they buy.

The Act provides that, for each production year, the Board must support, at not less than 80 p.c. of the previous 10-year average market or base price, the prices of nine commodities (cattle, hogs and sheep; butter, cheese and eggs; and wheat, oats and barley produced outside the Prairie areas as defined in the Canadian Wheat Board Act). Other commodities may be supported at such percentage of the base price as may be approved by the Governor in Council. Since the Act came into force, the following farm products, other than the nine named commodities, have been supported at one time or another:

honey, potatoes, soybeans, sunflower seeds, sugar beets, tobacco, turkeys, apples, peaches, sour cherries, apricots, raspberries, asparagus, tomatoes, milk for manufacturing and skim milk powder. The Board may stabilize the price of any product by an offer-to-purchase, by a deficiency payment, or by making such payment for the benefit of producers as may be authorized.

In stabilizing prices of certain commodities by means of assistance payments, the price stabilization program has been assisting the agricultural industry to make production adjustments from a position of excessive supply to one of more normal relationship between supply and demand. During the period of adjustment, the Board guarantees a minimum average return to producers for their product on a national average basis.

The cost of stabilization programs under the Act has averaged approximately \$83,000,000 a year. The Board has available a revolving fund of \$250,000,000, according to the Act. Losses incurred are made up by Parliamentary appropriations and any surplus is paid back to the Consolidated Revenue Fund. An Advisory Committee named by the Minister of Agriculture and composed of farmers or representatives of farm organizations assists the Board in its operations.

**Canadian Dairy Commission Act.**—The Canadian Dairy Commission was established by the Canadian Dairy Commission Act, 1966 (RSC 1970, c. C-7) and became operative on Apr. 1, 1967. The affairs of the Commission are directed by three Commissioners, and its objects are “to provide efficient producers of milk and cream with the opportunity of obtaining a fair return for their labour and investment and to provide consumers of dairy products with a continuous and adequate supply of dairy products of high quality”.

To perform its functions, the Commission is authorized to stabilize prices of major dairy products through offers to purchase at fixed prices, thus establishing stable prices in the interests of both producers and consumers. The Commission may borrow from the Minister of Finance the funds required for such purchases to a maximum of \$100,000,000, which must be repaid.

The Commission administers the payment of funds provided by the Government for subsidies to producers of milk and cream used in the production of dairy products. These payments supplement returns to producers from the market and permit market prices to be kept at reasonable levels. The total quantity of milk and cream on which subsidy is paid is related to the volume required to serve the Canadian domestic market. Each producer is given a quota for the amount for which he is eligible for subsidy. The Commission, indirectly, pools returns to producers from products sold on the domestic and export markets through an export equalization fund. Money for this is deducted from the subsidy except in provinces (Ontario and Quebec at present) that have established market-sharing quotas for producers. In those provinces, the deduction is made from the producers' market payments and the money remitted to the Commission. The funds are used to equalize export prices with domestic prices, for any surplus products that must be exported below domestic prices.

**Crop Insurance Act.**—To assist in making the benefits of insurance protection on crops available in all provinces, the Crop Insurance Act was passed in 1959 (RSC 1970, c. C-36). This Act does not set up any specific insurance scheme but rather permits the Federal Government to assist the provinces to do so by making direct contributions toward the cost of providing crop insurance. The initiative for establishing schemes to meet their own regional requirements rests with the provinces. Schemes may be organized on the basis of specific crops or areas within the provinces and agreements between the provinces and the Federal Government set out the terms of insurance coverage.

Under the Act and amendments of 1964, 1966 and 1971, the Federal Government will pay 50 p.c. of the administrative costs incurred by a province and 25 p.c. of the amount of



premiums required to make the scheme actuarially sound. In addition, the Federal Government may make loans to any province equal to 75 p.c. of the amount by which indemnities required to be paid under policies of insurance exceed the aggregate of the premium receipts for that year, the reserve for the payment of indemnities, and \$200,000. As an alternative to such loans, the Federal Government may re-insure a major portion of the provincial risk in a program operated under the Crop Insurance Act. Farmers insured under the Act are not eligible for payments under the Prairie Farm Assistance Act, nor are they required to pay the 1-p.c. levy on grain sales as provided for under that Act.

In the year ended Mar. 31, 1971, 53,403 farmers purchased \$116,671,000 worth of insurance coverage for their crops under 82 different crop insurance plans. Premiums charged totalled \$8,747,585 (including the federal share) and indemnities paid out were approximately \$6,600,000 as compared with \$17,500,000 in 1969. The number of farmers who purchased crop insurance in 1970 was 14 p.c. less than in 1969 and the insurance coverage was 28.5 p.c. less than in 1969. The main reduction in participation occurred in the Provinces of Alberta, Saskatchewan and Quebec. In 1970, the Federal Government instituted a program to reduce the 1570 acreage seeded to wheat in the spring wheat area of Western Canada. As a consequence, wheat acreage was reduced by 12,000,000 acres from the preceding year. In Alberta and Saskatchewan, where wheat is the main crop, this reduced the number of crop insurance purchasers by 21 p.c. and the amount of insurance coverage by 48 p.c., compared with 1969. In 1970, crops were generally above average across Canada. The major crop losses, which occurred in isolated areas, were due to hail storms in the Prairie grain area, excess moisture in certain areas of southeastern Manitoba and excess moisture during the harvest period in Ontario and the Maritime Provinces.

**Farm Improvement Loans Act.** -The Farm Improvement Loans Act (RSC 1970, c. F-3), administered by the Department of Finance, is designed to facilitate the availability of credit by way of loans made by the chartered banks and other lenders designated by the Minister of Finance to assist in almost every conceivable purchase or project for the improvement or development of a farm and includes the purchase of agricultural implements, the purchase of livestock, the purchase and installation of agricultural equipment or a farm electrical system, the erection or construction of fencing or works for drainage on a farm, and the construction, repair or alteration of farm buildings including the family dwelling, and the purchase of additional land for the purpose of farming. Credit is provided on security related to the purchase or project and on terms suited to the individual borrower.

The legislation, originally operative for three years (1945-48), has been continuous by way of extensions, usually for three-year periods. The current extension is for the period July 1, 1971 to June 30, 1974. The maximum repayment period for land purchase is 15 years and for all other purposes 10 years. The interest rate is prescribed in the regulations and is adjustable semi-annually on Apr. 1 and Oct. 1 of each year to reflect changes in the levels of interest rates generally. The borrower is required to provide from 10 p.c. to 25 p.c. of the cost of his purchase or project, depending on the loan category to which it belongs. The Federal Government guarantees each lender against loss sustained an amount of up to 90 p.c. of the first \$125,000 lent, up to 50 p.c. of loans in excess of \$125,000 but not exceeding \$250,000 and up to 10 p.c. of loans in excess of \$250,000 made by that lender during a lending period. This guarantee does not apply to any loan made after the aggregate of all loans made by all banks in a given period reaches an amount fixed by statute. The current maximum stands at \$900,000,000 which may be lent by the chartered banks and a limit of \$300,000,000 which may be lent by other designated lenders. By Dec. 31, 1970, 4,253 claims amounting to \$3,807,985 had been paid under the guarantee since the inception of the Act, representing a net loss ratio of less than one fifth of 1 p.c. after recoveries have been taken into account. The maximum loan or amount that may be outstanding to a borrower at any one time stands at \$25,000.

**1.—Loans Made and Repayments under the Farm Improvement Loans Act, 1945-70**

Period	Loans Made	Repayments <sup>1</sup>	Balance Outstanding
	\$	\$	\$
Mar. 1, 1945 to Feb. 28, 1948.....	33,605,576	33,605,576	—
Mar. 1, 1948 to Feb. 28, 1951.....	142,372,774	142,372,774	—
Mar. 1, 1951 to Mar. 31, 1953.....	190,449,006	190,447,377	1,629
Apr. 1, 1953 to Mar. 31, 1956.....	222,723,494	222,719,828	3,666
Apr. 1, 1956 to Mar. 31, 1959.....	239,064,072	239,043,586	20,486
Apr. 1, 1959 to June 30, 1962.....	346,906,122	346,418,406	487,716
July 1, 1962 to June 30, 1965.....	447,767,384	440,996,846	6,770,538
July 1, 1965 to June 30, 1968.....	553,823,636	463,001,667	90,821,969
July 1, 1968 to June 30, 1971 (as of Dec. 31, 1970).....	254,595,881	56,848,483	197,747,398
<b>Totals.....</b>	<b>2,431,307,945</b>	<b>2,135,454,543</b>	<b>295,853,402</b>

<sup>1</sup> Includes principal amount of claims paid under government guarantee.

**2.—Loans Made under the Farm Improvement Loans Act, by Purpose and Province, 1969 and 1970, with Cumulative Totals from 1945**

Purpose and Province	1969		1970		Cumulative Totals 1945-70	
	Loans	Amount	Loans	Amount	Loans	Amount
	No.	\$	No.	\$	No.	\$
<b>Purpose</b>						
Purchase of agricultural implements	32,090	92,984,086	23,747	62,995,777	1,205,809	1,886,091,261
Construction, repair or alterations of, or making additions to any building or structure on a farm..	5,750	22,721,204	4,418	15,637,411	120,871	279,910,379
Purchase of livestock.....	5,172	14,213,758	4,791	13,603,927	121,446	177,548,642
Purchase of land.....			503	4,392,649	503	4,392,649
Other improvements.....	3,879	12,137,434	2,533	6,399,971	67,551	83,365,014
<b>Totals.....</b>	<b>46,891</b>	<b>142,056,482</b>	<b>35,992</b>	<b>103,029,735</b>	<b>1,516,180</b>	<b>2,431,307,945</b>
<b>Province</b>						
Newfoundland.....	7	28,750	12	42,110	651	1,068,576
Prince Edward Island.....	750	1,903,969	629	1,693,454	22,322	29,868,662
Nova Scotia.....	424	1,111,787	346	931,801	14,939	19,460,618
New Brunswick.....	223	610,538	253	756,872	12,550	18,648,471
Quebec.....	472	2,184,024	258	1,321,075	114,245	158,885,138
Ontario.....	9,461	31,243,159	6,884	19,872,568	258,486	448,854,039
Manitoba.....	5,103	15,343,328	3,945	10,895,249	182,554	282,814,172
Saskatchewan.....	12,661	36,236,406	10,809	28,269,625	436,537	697,046,227
Alberta.....	15,864	46,444,219	11,920	33,929,521	428,274	690,120,536
British Columbia.....	1,926	6,950,302	1,436	5,317,460	45,622	83,941,506

**Prairie Grain Advance Payments Act.**—This Act, which came into force on Nov. 25, 1957 (RSC 1970, c. P-18) and was amended in 1958, 1968, 1969 and 1971, provides for interest-free advance payments to producers in Western Canada for farm-stored threshed grain (wheat, oats and barley). The rate of advance payment per bushel for wheat, oats and barley is prescribed by regulation each year. The rate approximates two thirds of the initial payment on the grade of each grain which it is estimated will be delivered in the greatest volume by producers to country elevators during the crop year. The maximum total advance is governed by quota levels also prescribed by regulation and may not exceed \$6,000 for any individual producer for the crop year. The rate of repayment is the same as the rate of advance. Repayment is effected by deducting approximately two thirds of

the initial payment for wheat, oats and barley delivered subsequent to the loan until the producer has discharged his advance.

In addition to the above, the Act contains provisions for special advance payments covering unharvested grain and the drying of grain. The maximum total advances that may be obtained by producers for these items are \$3,000 and \$600, respectively.

### 3.—Applications, Advances and Refunds under the Prairie Grain Advance Payments Act, Years Ended July 31, 1962-71

Year Ended July 31—	Applica- tions	Total Advance	Average Advance	Total Refunded	Percentage Refunded
	No.	\$	\$	\$	
1962.....	22,342	16,656,713	746	16,644,365	99.9
1963.....	39,683	29,251,526	737	29,236,449	99.9
1964.....	63,427	62,136,418	980	62,100,703	99.9
1965.....	38,375	32,961,844	859	32,913,014	99.9
1966.....	43,509	40,600,386	933	40,470,289	99.7
1967.....	36,953	36,668,270	992	35,242,003	96.1
1968.....	45,811	47,280,738	1,032	45,457,285	96.1
1969.....	113,491	151,852,319	1,338	99,436,490	65.5
1970.....	122,080	272,776,419	2,234	134,978,193	49.4
1971 <sup>a</sup> .....	51,334	91,101,659	1,775	65,606,756	72.0

**Farm Credit Act.**—The Farm Credit Act, 1959 (RSC 1970, c. F-2) established the Farm Credit Corporation as successor to the Canadian Farm Loan Board established in 1929. The Corporation, which is a Crown agency, reports to Parliament through the Minister of Agriculture.

The Act provides two types of long-term mortgage loans for farmers. Under Part II the Corporation may lend up to 75 p.c. of the appraised value of the farm land and buildings taken as security, not exceeding \$40,000 for one, \$80,000 for two or \$100,000 for three or more owner-operators principally occupied in a single farming business. Under Part III loans may be made up to 75 p.c. of the appraised value of the land and chattels, not exceeding \$55,000 for one or \$100,000 for two or more qualified owner-operators in a single farm business. Special provision is made under this Part for loans up to 90 p.c. of farm assets where the owner-operator is under age 35 and the management of the farm is considerably above average. Part III loans are further secured by insurance on the life of the borrower, and his farming operations are subject to supervision by the Corporation. Similar life insurance and supervision are available to Part II borrowers on an optional basis.

Under both Parts, applicants must be at least 21 years of age and principally occupied in farming. Individual borrowers under Part III must be between 21 and 45. To qualify for more than \$55,000 under Part III, there must be at least two owner-operators under 45, or one under 35. All loans are repayable on an amortized basis within a period not exceeding 30 years. The interest rate is set by Order in Council and varies with the cost of money to the Corporation.

The Corporation has 118 field offices administered by 235 credit advisers who are responsible for informing local farmers about the services available, for pre-loan counselling on credit use, farm planning and farm management, for accepting applications and for making farm appraisals.

In addition to the amounts repaid by borrowers, funds for lending to farmers may be borrowed by the Corporation from the Minister of Finance. The aggregate amount of such borrowings outstanding at any time may not exceed 25 times the capital of the Corporation. This capital was raised by amendment to the Act in 1968 from \$40,000,000 to \$56,000,000. There were 69,050 loans to the amount of \$1,202,546,986 outstanding as of Mar. 31, 1971.



**4. --Loans Approved and Disbursed under the Farm Credit Act, Years Ended Mar. 31, 1962-71**

Year Ended Mar. 31—	Loans Approved		Loans Paid Out	Year Ended Mar. 31—	Loans Approved		Loans Paid Out
	No.	\$	\$		No.	\$	\$
1962.....	5,885	68,574,850	68,886,875	1967.....	12,167	247,947,500	234,447,269
1963.....	7,438	90,924,300	78,428,094	1968.....	11,954	263,236,500	251,228,049
1964.....	8,689	108,009,100	96,315,635	1969.....	9,159	208,330,500	205,341,841
1965.....	10,142	154,813,900	139,750,639	1970.....	5,829	160,466,000	158,017,992
1966.....	11,238	208,984,900	201,687,642	1971.....	4,117	115,213,300	116,548,269

**5.—Loans Approved under the Farm Credit Act, by Province, Years Ended Mar. 31, 1969-71**

Province	1969		1970		1971	
	No.	\$	No.	\$	No.	\$
Newfoundland.....	13	432,500	6	173,300	19	634,300
Prince Edward Island.....	112	2,612,200	67	2,148,400	37	1,773,200
Nova Scotia.....	56	1,293,900	20	703,000	29	990,200
New Brunswick.....	94	2,216,500	73	1,761,400	51	1,351,000
Quebec.....	1,194	23,201,200	715	16,149,400	521	13,166,400
Ontario.....	1,488	35,159,200	1,116	32,612,800	961	27,578,100
Manitoba.....	935	21,098,600	604	17,295,900	485	14,030,500
Saskatchewan.....	2,853	64,364,300	1,488	38,602,300	992	24,830,800
Alberta.....	2,055	48,178,200	1,492	42,767,700	814	23,854,800
British Columbia.....	359	9,773,900	248	8,251,800	188	7,004,000
<b>Totals.....</b>	<b>9,159</b>	<b>208,330,500</b>	<b>5,829</b>	<b>160,466,000</b>	<b>4,117</b>	<b>115,213,300</b>

**Farm Syndicates Credit Act.**—The Farm Syndicates Credit Act, 1964 (RSC 1970, c. F-4) authorizes the Farm Credit Corporation to lend to qualified groups of farmers (referred to as syndicates). A syndicate is a group of three or more farmers, the majority of whom have farming as their principal occupation, who have signed an agreement acceptable to the Corporation with respect to the joint purchase and use of machinery, equipment or buildings which can be used profitably by them in their farming operations. Co-operative farm associations and certain farming corporations may qualify as syndicates for loans without the members entering into a formal agreement.

A syndicate may borrow up to 80 p.c. of the cost of machinery, buildings (including site and other improvements) and installed equipment suitable for joint use, to a maximum of \$15,000 per member or \$100,000, whichever is the lesser. Loans are repayable over a period not exceeding 15 years for buildings and installed equipment, and seven years for mobile machinery. The interest rate is based on the cost of funds to the Corporation, advanced by the Minister of Finance, and its expenses in servicing loans. There is an initial charge of 1 p.c. on the amount of each loan. Security is provided by a promissory note signed by each syndicate member, and such other security as may be required. Up to Mar. 31, 1971, the Corporation had approved loans for 654 syndicates totalling \$9,284,684.

**Prairie Farm Assistance Act.**—The Prairie Farm Assistance Act, 1939 (RSC 1970, c. P-16), provides for direct money payments by the Federal Government on an acreage-and-yield basis to farmers in areas of low crop yield in the Prairie Provinces and in the Peace River area of British Columbia. Its purpose is to assist in dealing with a relief problem which faces municipalities when widespread crop disasters reduce crop yields over a large area. The per acre payments are intended to assist farmers to seed a crop in the following year. Payments for the year ended Mar. 31, 1971 totalled \$7,357,980; payments made under the Act since 1939 amounted to \$389,426,000.

Payments are made from the Prairie Farm Emergency Fund to which farmers contribute 1 p.c. of the value of all sales of wheat, oats, barley, rye, flaxseed and rapeseed. The additional funds required are provided from the federal treasury. The total collected from the 1-p.c. levy in the year ended Mar. 31, 1971 was \$6,935,572; the amount collected since 1939 was \$211,094,643.

Farmers operating land in the spring wheat area, and not covered by a federal-provincial crop insurance scheme, are eligible for awards. Crop failure and natural causes preventing seeding and summerfallowing are taken into account in making awards. These may not exceed \$800 in respect of any one farmer's total cultivated acreage.

The PFAA administered the Operation LIFT program in 1970. This program offered acreage payments to farmers who reduced acreage seeded to wheat and increased acreage seeded to perennial forage or summerfallow and was introduced by the Federal Government to alleviate problems arising from the surplus of wheat in storage. Payments made to farmers under the program as of July 1971 amounted to \$57,900,000. The PFAA also administers the forage program introduced in 1971, which offers an incentive of \$10 an acre to farmers who change their farm production from grains, oilseeds and other crops to perennial forage.

**Livestock Feed Assistance Act.** The Livestock Feed Assistance Act, 1966-67 (RSC 1970, c. L-9) established the Canadian Livestock Feed Board, which is a Crown agency reporting to Parliament through the Minister of Agriculture. The Board has four main objects, which are to ensure: (1) the availability of feed grain to meet the needs of livestock feeders; (2) the availability of adequate storage space in Eastern Canada for feed grain to meet the needs of livestock feeders; (3) reasonable stability in the price of feed grain in Eastern Canada and in British Columbia; and (4) fair equalization of feed grain prices in Eastern Canada and in British Columbia.

In furtherance of these objectives, the Board may make payments related to the cost of feed grain storage and transportation. Feed grain transportation assistance payments have been made since 1941, and since April 1967 have been made under the authority of the Livestock Feed Assistance Act. Under the Feed Grain Assistance Regulations of the Appropriations Act, the original policy was initiated in October 1941 to provide a market for western feed grains, and to enable livestock feeders in Eastern Canada and British Columbia to obtain supplies of feed grains at a cost that would maintain livestock and poultry production at a high level. This program has been modified over the years to encourage better utilization of both transport and storage facilities.

**6.—Freight-Assisted Shipments of Feed Grains, by Province of Destination,  
Years Ended Mar. 31, 1970 and 1971**

Year and Province	Western Wheat and Sample Feed Grains	Oats	Barley	Rye	Screenings	Mill-feeds	Eastern Corn and Wheat	Total Shipments	Expenditure
	tons	tons	tons	tons	tons	tons	tons	tons	\$
<b>1970</b>									
Nfld.....	13,950	3,624	10,426	195	281	3,526	3,321	35,323	634,119
P.E.I.....	5,295	1,724	10,506	236	339	6,594	1,740	26,434	347,893
N.S.....	57,729	19,334	54,458	833	1,198	23,095	15,146	171,793	1,782,344
N.B.....	29,249	15,095	40,044	345	497	17,789	7,890	110,909	1,345,105
Que.....	257,163	247,249	516,381	1,032	16,717	230,839	2,829	1,272,210	9,438,200
Ont.....	208,099	144,271	379,234	532	42,667	181,572	—	956,375	4,857,858
B.C.....	109,778	48,790	141,752	1,120	8,669	47,265	2,422	359,796	3,438,410
<b>Totals, 1970...</b>	<b>681,263</b>	<b>480,087</b>	<b>1,152,891</b>	<b>4,293</b>	<b>70,368</b>	<b>510,680</b>	<b>33,348</b>	<b>2,932,849</b>	<b>21,813,929</b>
<b>1971</b>									
Nfld.....	18,968	4,589	12,643	—	—	3,028	982	40,210	677,738
P.E.I.....	11,467	4,629	20,774	—	357	3,787	2,007	43,021	574,699
N.S.....	82,997	24,651	46,061	—	900	12,898	9,251	176,758	1,717,695
N.B.....	40,212	15,219	31,189	—	360	13,595	5,344	105,919	1,344,611
Que.....	424,566	216,337	499,870	1,057	12,994	207,440	471	1,362,735	9,098,250
Ont.....	257,820	135,485	239,535	1,874	86,599	152,422	—	873,735	4,096,850
B.C.....	116,781	49,740	129,155	—	10,148	33,062	1,865	340,751	2,940,157
<b>Totals, 1971...</b>	<b>952,811</b>	<b>450,650</b>	<b>979,227</b>	<b>2,931</b>	<b>111,358</b>	<b>426,332</b>	<b>19,920</b>	<b>2,913,129</b>	<b>23,450,000</b>

<sup>1</sup> Includes Manitoba corn shipped into British Columbia.

**The Small Farms Development Program.**—In addition to the above-mentioned legislation providing farm assistance, another type of assistance was considered necessary by both the federal and provincial governments. Because economic forces were driving thousands of farmers off the land and promoting the evolution of big farms requiring high investment, there was an urgent need for the development of new and workable programs to assist the small farmer to remain on the land and to raise his operations above the poverty level, or to retire from farming without abandoning his farm home or rural municipality. Thus, in late 1971, the Small Farms Development Program was initiated for which the Federal Government earmarked \$150,000,000 to be spent over the first seven years of the program. Through extended credit facilities, the small farmer will gain access to the funds he requires to secure additional land or equipment in order to develop a profitable business; through programs currently being worked out with the provincial departments of agriculture, the information and services he needs in so doing will be available to him; if he desires to sell his farm he will qualify for an adjustment grant that will be added to the selling price of the land, which will then be released to others wishing to acquire it, either for farming or for such other uses as reforestation or recreation. In carrying out the program, arrangements will be made for integration with such existing services as those provided under the federal-provincial ARDA agreements, manpower training programs, adult education and training programs, farm management programs, and proposals for provincial land banks.

### Section 3.—Provincial Governments in Relation to Agriculture\*

#### Subsection 1.—Agricultural Services

**Newfoundland.**—Government agricultural services in Newfoundland are operated by the Division of Agriculture and Food of the Department of Mines, Agriculture and Resources. The Division consists of six directors and a staff of 125 under the administration of the Deputy Minister of Agriculture and Food. For purposes of administration, the province is divided into a number of districts in each of which is located a fieldman. Officers in charge of different phases of agricultural development visit each district on assignments from the St. John's office.

Departmental policies in support of the agricultural industry include: a bonus of \$125 an acre on land cleared by privately owned equipment; the distribution of ground limestone at a subsidized rate; the payment of bonuses on purebred sires; and financial assistance to agricultural societies, marketing organizations, and exhibition committees.

Favourable marketing conditions and departmental assistance and loans under the Provincial Farm Development Loan Board, the Newfoundland Marketing Board and the Newfoundland Farm Products Corporation have contributed to increased output of agricultural products in the province.

**Prince Edward Island.**—The Prince Edward Island Department of Agriculture is composed of the following Branches and Divisions. The Extension Services Branch deals with rural extension education generally, through its three Divisions: the Agricultural Economics and Statistics Division; the Agricultural Representative Division which has five district offices, each with an agricultural representative, a home economist and a farm management specialist; and a Women and Youth Division, which includes an Information Section. The Production Sciences Branch supervises the regulatory function of the Department and assists with agricultural extension programs. It has three Divisions: the Soils and Water Division, the Production Science Division and the Veterinary and Dairy Services.

The Department of Agriculture is also responsible for the forestry program in the province, which function comprises a third Branch of the Department; it is described in Chapter XIII under "Provincial Forestry Programs".

\* Prepared by the agriculture officials of the respective provincial governments.



**Nova Scotia.**—The Department of Agriculture and Marketing endeavours to "help the people to help themselves" through strengthening member interest in such organizations as the Nova Scotia Federation of Agriculture, the Nova Scotia Fruit Growers' Association, various agricultural co-operative organizations, credit unions and producer and marketing organizations.

**New Brunswick.**—Provincial government agricultural policy and programs in New Brunswick are administered and directed by the Department of Agriculture and Rural Development. Under the Minister of Agriculture and Rural Development, the Department is administered by a deputy minister, an assistant deputy minister and the directors of Branches concerned with: extension, livestock and dairying, veterinary services, poultry, plant industry, agricultural engineering, home economics, credit unions and co-operatives, agricultural education and rural development. The Department also has a Farm Economics Division and an Information Division, as well as a Farm Adjustment Board and a Dairy Products Commission.

**Quebec.**—Agricultural policies of the Quebec Government, as applied by the Department of Agriculture and Colonization, are based on one overriding and clearly defined objective—to make agriculture profitable and bring it into line with the social and economic needs of the 1970s.

Its prime target is, therefore, a systematic modernization of farms. Government, in co-operation with agricultural and related associations, is trying to increase and improve production. It is also attempting to guide agriculture along truly professional lines, through conversion of production techniques to meet local needs and skills, through sound land-use development policies, and through adult education and practical management training in agricultural study groups.

To carry out this objective, the Quebec Department of Agriculture is divided into three main Branches—the Secretariat of the Department, the Production and Veterinary Services Branch and the Administrative Services, Research and Education Branch. Under the direction of the Minister, the Deputy Minister and three Assistant Deputy Ministers, these Branches work in co-operation with the scientific and technical services which function as a support group and also contribute to their general orientation.

The Secretariat of the Department assists in over-all planning and policy making by studying solutions to major administrative and technical problems, developing programs, preparing estimates, supervising the implementation of established departmental programs and conducting the necessary liaison with other provincial and federal departments and agencies concerned with agricultural matters.

The Production and Veterinary Services Branch is responsible for improving and increasing production. It is particularly concerned with farm reorganization through regrouping and developing up-to-date and viable units. It exercises a direct influence on farmers through 12 well-organized regional administrative offices and laboratories.

The Administrative Services, Research and Education Branch supplies the manpower, co-ordinating labour relations, staff training and employee services and organizing promotional competitions through the Civil Service system. It also co-ordinates the activities of various administrative branches of the Department and, in co-operation with the Accounting Branch, prepares part of the estimates. In addition, it looks after the internal and external needs of the Department as regards supplies and equipment.

Each of these Branches operates in a specific field requiring the co-operation of other departmental services such as Legal, Accounting, Grants and Incentives, Agricultural Water Supplies, and Storage and Equipment on the administrative side, and Veterinary Services, Artificial Insemination and Herd Improvement, Farm Organization, Economics, Marketing, Education and Research, and Information services on the regional offices and laboratories side. Each therefore plays an important role in the efficient operation of the Department and contributes to its effectiveness in direct action in the field.

The entire departmental structure is rounded out with the Agricultural Marketing Board, Farm Credit Bureau, and Crop Insurance Board, which implement legislation for both the farmer and the consumer. A Crown corporation, the St. Hilaire Sugar Refinery, completes the organization; it promotes the growing of sugar beets in part of the green belt around Montreal.

**Ontario.**—The Ontario Department of Agriculture and Food conducts a wide variety of programs to develop a sound agricultural industry and to help farmers. Most assistance is through self-help programs which benefit the individual farmer. The Department administers 48 separate legislative Acts, some of which are regulatory on an industry-wide basis.

Through the Agricultural Rehabilitation and Development Branch (ARDA) the province shares equally with the Federal Government the cost of rural development. In Ontario, ARDA is heavily committed to farm enlargement and consolidation, capital grants for farm development, retraining and research programs, development of community pastures where farmers rent pasture at cost, and soil, water and forest conservation projects.

Agricultural Manpower Services assists in recruiting, moving and placing farm workers during the planting and harvesting seasons. This service operates under the Provincial Agricultural Manpower Agreement negotiated each year by the Federal Government and the provincial governments.

The Co-operative Loans Board makes loans to agricultural co-operative associations for the construction of cold storages, feed mills, processing plants, grain elevators, potato storages, dairies, creameries and cheese factories.

The Crop Insurance Commission of Ontario, a Branch of the Department, provides insurance against weather, insect and disease damage to winter wheat, spring grain, forage crops, grain corn, soybeans and white beans. The cost of administration is shared equally by the Federal and Ontario Governments and the premium rates are further subsidized to the extent of 25 p.c. by the Federal Government and 25 p.c. by the Ontario Government, effective in the autumn of 1971.

The Soils and Crops Branch conducts programs of applied research to provide farmers with specific recommendations for their areas. Soils and crops specialists frequently work with local branches of the Ontario Soil and Crop Improvement Association to relay this information to the farmers. Specialists also supervise the county weed inspectors who enforce the Weed Control Act and provide specialized advice to producers of horticultural crops in Ontario.

The programs of the Veterinary Services Branch fall into the categories of service and regulation. Services include administration of a mastitis control program, a certified herd policy for swine and veterinary assistance for designated areas (mostly in the northern districts); the Regulatory Division administers the Meat Inspection Act, the Brucellosis Act 1965, the Animal Contagious Diseases Act, the Livestock Community Sales Act, the Dead Animal Disposal Act, the Rabies Indemnification program, the Mastitis Control program, the Animals for Research Act and the Pregnant Mare Urine Farms Act. The Branch provides diagnostic services for livestock and poultry producers at five regional laboratories.

The Live Stock Branch supervises numerous livestock improvement programs and administers the Warble Fly Control Act, the Artificial Insemination Act, the Dog Tax and Live Stock and Poultry Protection Act, and the Hunter Damage Compensation Act. Livestock improvement programs include dairy herd improvement; beef cattle performance testing; quality meat sire policy; bull, boar and ram premium policies; production testing in sheep and the federal-provincial sheep transportation assistance policy; and northern Ontario livestock assistance. The Branch sponsors and endorses the Ontario Beef Cattle Improvement Association and the county and district associations, makes grants available to regional livestock clubs that hold sales of good quality breeding stock, and sponsors exhibits of livestock outside the province.

The Ontario Stock Yards Board, which operates under the Federal Livestock and Livestock Products Act, was established to provide a marketing service for Ontario livestock producers and to protect their bargaining power.

The Ontario Milk Commission, a Branch of the Department, is responsible for dairy programs. Under the Milk Act, 1965 and through the Ontario Milk Marketing Board and the Ontario Cream Producers' Marketing Board, the Commission is responsible for all producer marketing of milk and cream in the province. The Ontario Milk Marketing Board directs milk from farm to plant and establishes prices. The Commission administers the Farm Products Payments Act, 1967, the Oleomargarine Act, and the Edible Oil Products Act. It also carries out the milk quality program, audits plant records, and supervises the fluid milk, milk products and central milk testing programs. The Infra Red Milk Analyzer (IRMA) is the recognized method for determining milk fat content in Ontario. The Commission licenses processors and distributors, carries on extension work with producers, operates milk-testing laboratories for the purpose of calculating producer returns, certifies butter and cheese makers, graders and testers, and does inspection work on farm and in plant.

The Farm Products Inspection Branch promotes improved methods of disease control, grading, packaging, marketing, handling, storing and transporting Ontario farm produce. This is provided for under the Farm Products Grades and Sales Act and Regulations, and the Plant Diseases Act.

Under the Ontario Farm Products Marketing Board, a Branch of the Department of Agriculture and Food, 19 producer boards market 37 commodities with a total market value of approximately \$500,000,000 annually.

The Ontario Food Council Branch of the Department has the broad responsibility of finding methods to better co-ordinate marketing of Ontario farm products in Ontario, other Canadian provinces and abroad. The Council includes representatives of producers, processors, wholesalers, distributors and consumers. Market development, import replacement, and expansion of food information and consumer affairs services are major areas of the Council's work. The Ontario Food Terminal, operating under the Ontario Food Terminal Act, offers farmers the services of one of the largest volume wholesale fruit and vegetable markets in Canada.

Research and education are administered by the Education and Research Division of the Department. Under the Division, the Agricultural Research Institute of Ontario recommends and co-ordinates research for the betterment of agriculture, veterinary medicine and household science, undertakes continuous research on crops, livestock and farming practices, and administers a number of services. Horticultural research is co-ordinated by the Horticultural Research Institute of Ontario, which also operates under the Education and Research Division. Fruit and vegetable product development research, and fruit and vegetable variety research are the chief functions of the Institute. The Provincial Pesticide Residue Testing Laboratory tests samples of animal, vegetable and mineral origin for herbicides, fungicides and insecticides. The Laboratory continually tests milk collected from Ontario farms for pesticide residues. The Division is also responsible for five diploma-course programs at the Ontario Agricultural College at the University of Guelph, and at the Colleges of Agricultural Technology at Centralia, Kemptville, New Liskeard and Ridgetown.

The Provincial Entomologist reports on insect control programs, as provided under the Plant Diseases and Abandoned Orchards Act, to determine pest control recommendations for Ontario crops. The Provincial Apiarist is responsible for reporting on the bee and honey industry.

There are 54 county and district Extension Branch offices to serve Ontario farmers. These are staffed by agricultural representatives who relay information about agricultural research developments directly to farmers. In addition, specialists on farm management and engineering are located strategically throughout the province. The northern Ontario



assistance policies of the Department, which vary from year to year, are also administered by the Branch. The Branch endorses and assists the 4-H Clubs and the Junior Farmers' Association of Ontario.

The Home Economics Branch conducts an extension program for rural women's groups and for girls' 4-H homemaking clubs. The senior program deals with the study of foods, nutrition, clothing, textiles, home furnishings, home crafts and home management.

The Information Branch publishes and distributes several hundred publications covering most areas of agriculture in Ontario, as well as home gardening and homemaking. News releases, radio tapes and television are used to convey information on important changes in agriculture to farmers. Its film library distributes more than 2,000 films annually to the public. This Branch co-ordinates a Departmental Market Information Service which provides up-to-date commodity quotations and farm weather reports to the media and individual producers on a daily basis using radio and audio tape facilities.

The Agricultural and Horticultural Societies Branch advises and offers financial assistance to agricultural and horticultural societies and ploughmen's associations throughout the province and administers the Community Centres Act which authorizes grants to municipalities for capital investments in community centres and recreational facilities.

The Ontario Telephone Service Commission provides technical and management advice to the 51 Independent Telephone Systems (municipal and privately owned) operating in rural Ontario.

The Farm Economics, Co-operatives and Statistics Branch does research into marketing, policy, production, land use, and dairying; works with Statistics Canada to collect and publish statistics on farm production and marketing; and provides services to various Ontario agricultural co-operatives.

**Manitoba.**—The Department of Agriculture serves Manitoba through the following branches.

The Extension Service Branch deals with rural extension education generally and has specialists devoting attention particularly to agricultural engineering, entomology and beekeeping, radio, TV and information, 4-H Clubs and women's work, manpower and rural development. Meetings, field days, and short courses are held; 39 agricultural representatives and four assistants are located in 37 offices in the province, each serving from one to five municipalities, four manpower extension agents serve the Interlake region, and 15 home economists serve designated areas.

The Animal Industry Branch develops and administers policies that encourage the improvement and efficient production of different classes of livestock, including poultry, supervises the grading of cream and inspects dairy manufacturing plants. Several Acts to promote high quality products for consumer protection are administered in co-operation with federal departments.

The Soils and Crops Branch encourages the development, production and improvement of cereal, forage and special crops and horticulture and promotes proper land use through soil conservation programs. The Branch develops and administers policies that encourage good field crop husbandry, soil conservation, land development and weed control.

The Economics and Publications Branch deals with agricultural economics, supervises the farm business clubs and publishes and distributes annually approximately 250,000 bulletins, circulars, posters, leaflets, etc. The Branch is responsible for publishing provincial agricultural statistics and maintains an agriculture reference library.

The Co-operative Services Branch registers and supervises co-operatives and credit unions and administers the Acts governing them. It also collects and compiles statistics on co-operative activity throughout the province. Producer marketing boards and Marketing Commissions under the Natural Products Marketing Act are also served and administered through this Branch.

The Veterinary Services Branch provides a diagnostic laboratory for animal diseases; administers the Veterinary Services District Act and the Veterinary Science Scholarship Fund Act; and works in close co-operation with practising veterinarians and the federal Health of Animals Branch in the control of livestock and poultry diseases.

**Saskatchewan.**—The Saskatchewan Department of Agriculture is composed of the following branches and services.

The Agricultural Extension Branch is the main extension agency of the Department and has the primary objective of maintaining and increasing the over-all efficiency of agricultural production. To that end it provides a basic extension program designed to: (1) ensure that the most modern farming techniques and the latest research findings are made available to farmers; (2) provide leadership and general guidance in agricultural adjustment programs needed to bring about necessary social and economic progress; and (3) co-ordinate and administer field programs and policies sponsored by other branches for the purpose of encouraging desirable adjustments in agricultural production and to cope with emergency situations. The Branch endeavours to maintain close co-operation with other branches of the Department as well as with the University of Saskatchewan and the Canada Department of Agriculture in the three-way co-ordination of agencies known as the co-operative extension program.

The Production and Marketing Branch is comprised of three major Divisions—Animal Industry, Plant Industry and Veterinary. The first two provide specialist services to agricultural representatives and agriculture in field crops, weed and insect control, soil conservation, horticulture, apiculture, livestock and poultry, and administer related Acts and programs. The Veterinary Division administers the Veterinary Service District Act and Calfhood Vaccination Program, provides laboratory services and co-operates with the Federal Government and local veterinarians in disease prevention and control.

The Conservation and Development Branch provides engineering services for flood control and water use projects and for irrigation development. It is responsible for construction of works for the Saskatchewan River Irrigation Project and does much of the development work for the community pastures.

The Lands Branch administers Crown land, except forest reserves and parks in settled areas, classifies it according to the use for which it is best suited and disposes of it through lease or sale. The Branch also secures land control for land utilization projects, supervises new settlement projects, pays for clearing and breaking by farmers on provincial leases, operates provincial community pastures and operates training farms for people of Indian ancestry.

The Family Farm Improvement Branch gives farmers technical advice on farm buildings, farmstead planning, mechanization and materials handling. The Branch conducts research for farm water and sewage works, provides technical and financial assistance for their installation and administers the Agricultural Implements Act.

The Economics and Statistics Branch undertakes research and investigations required to formulate and evaluate policies and programs that will ensure a high level of growth and efficiency in Saskatchewan's agriculture; it collects, analyses and distributes economic information. The Farm Management Division carries out an extension program in farm business management. Data on crop conditions, production, marketings and income are available from the Statistics Division.

**Alberta.**—The Alberta Department of Agriculture has six Divisions whose activities are co-ordinated by an Executive Committee made up of the six Directors, the Deputy Minister and his executive assistant.

The Plant Industry Division administers programs and policies relating to crop improvement, crop protection and pest control, weeds, soils and fertilizers, horticulture, apiculture and special projects. It operates a crop clinic in Edmonton, a horticultural

research station at Brooks, and an extensive tree nursery at Oliver which supplies millions of trees yearly for farm planting and for reforestation.

The Animal Industry Division administers legislation, policies and programs in the broad area of livestock, dairy and poultry production and in processing and marketing. Included are: setting standards for and approving public sales of sires, ROP programs for beef cattle, swine and sheep, extension programs for all classes of stock, and administering standards and qualifications for the artificial insemination (AI) industry; supervising feeder associations; brand registration and inspection; licensing of butchers, livestock dealers, stockyards and AI technicians; pound districts and sale of horned cattle. The testing, grading and purchasing of raw produce by all dairy plants are under regulation, as are standards of construction, manufacture, processing, sanitation and temperature control for dairy and frozen-food plants. A regular cow-testing service to provide the basis for breeding, feeding and culling dairy cattle is available to dairy producers, and chemical and bacteriological analyses are conducted for industrial directives. Licences are issued to poultry hatcheries, wholesalers, first receivers and truckers, and programs are conducted for control of pullorum-typhoid diseases of chicken- and turkey-hatching egg supply flocks; extension programs, cost studies, disease tests and surveys, and research projects with respect to poultry are also carried out.

The Veterinary Services Division provides diagnoses of livestock and poultry diseases and conducts investigations of disease conditions; provides lecture service for the University of Alberta and for other groups; promotes policies aimed at reducing losses such as vibriosis and mastitis control, stockyard inspection and swine health programs; administers the licensing of live fur bearing animals and pelts; and assists fur farmers in care, management and stock improvement.

The Extension Section of the Extension and Colleges Division co-ordinates the extension programs of every Division of the Department of Agriculture. In association with other extension agencies, it assumes leadership in the formulation and implementation of District and regional programs for agriculture, family living and community development. The four Extension Branches operate mainly through 54 District Extension Offices co-ordinated by six regional Directors, and complemented by an expanding staff of regional specialists in livestock, plant industry, engineering and home economics. Leadership training is also provided. The Information Branch is in charge of extension through mass media. It distributes bulletins, pamphlets, building plans, releases, timely articles and news material to the press, conducts radio programs five days a week over 10 radio stations and takes an increasing part, both directly and indirectly in the production of television programs on all phases of agriculture and home-making.

Agricultural and vocational colleges are operated at Olds, Vermilion and Fairview, all three offering five courses in agriculture—a general course, or majors in plant science, animal science, agricultural mechanics and farm management. They also offer a complete business course. Special short courses offered at one or the other of the colleges include land appraisal and assessment, artificial insemination, welding and motor mechanics, irrigation technology, pesticide applicators, building materials merchandising, automation technology, dairy production and custodial housekeeping.

The Agricultural Economics Division provides extension information on farm management, credit and marketing to aid farmers in instituting good business practices on the farm; collects, analyses and disseminates agricultural statistics in collaboration with Statistics Canada; conducts studies on farm production costs and returns, marketing, and resource and rural development; and provides advisory assistance on economic matters to government departments, the agriculture industry and farm groups. Credit is made available to farmers for the purchase of land under the Farm Purchase Credit Act and for home improvements under the Farm Home Improvement Act.

The Program Development Division administers a number of programs that do not fit in with the work of other Divisions. Branches of the Division include the Agricultural Products Marketing Council, which establishes and regulates marketing boards and com-



missions to assist in the marketing of agricultural products; the Municipal Relations Branch, which assists in programs carried out by local authorities, administers the federal-provincial manpower agreements, and assists in the administration and achievement of objectives of agricultural societies; and the Irrigation Secretariat, which administers, for the Irrigation Council, the Alberta Irrigation Act in the areas of administration, operation, maintenance and reconstruction of irrigation projects and districts in the province.

**British Columbia.**—The Department of Agriculture comprises four Divisions—Administrative Services, Production Services, Special Services and General Services. Administrative Services is responsible for the direction of policies affecting farmers' institutes, grants, accounts, personnel and publications. Production Services includes the Apiary, Dairy, Field Crops, Horticulture, Livestock, Poultry, Farm Management and 4-H Club Branches, and district agriculturists. Special Services include the Animal Pathology, Engineering, Entomology, Markets and Statistics, Soils, Veterinary and Plant Pathology Branches. The remainder—Agricultural Rehabilitation and Development Act (ARDA), Information Service, British Columbia Marketing Board, British Columbia Milk Board, Crop Insurance Branch and Institutional Farms—are grouped under General Services.

In addition to the headquarters staff at Victoria, the Department maintains 19 district offices in various parts of the province, as well as a veterinary laboratory and poultry-testing station at Abbotsford, a beef-testing station at Kamloops and dairy and entomology laboratories at Vancouver and Cloverdale, respectively. Soil-testing facilities are installed at Kelowna.

### **Subsection 2.—Agricultural Schools, Colleges and Universities**

All of the provinces of Central and Western Canada have agricultural colleges in association with universities that give courses leading to degrees in agricultural science and home economics and also provide postgraduate courses; the University of British Columbia has a faculty of Agricultural Sciences; Ontario, Quebec and Saskatchewan have veterinary colleges. In addition, all of these provinces have schools of agriculture or diploma courses that provide basic training for young people intending to return to farms or interested in employment in businesses allied with agriculture.

In Alberta, these programs are offered at the vocational, technician and technologist levels by three agricultural and vocational colleges which also engage in applied agricultural research and offer programs in adult education and upgrading (see p. 549).

In Quebec, scientific education in agriculture is available at Laval and McGill Universities, and two institutes offer technical and technological courses in agriculture. Vocational education generally is the responsibility of the Department of Education.

In the Maritime Provinces, training in scientific agriculture is available at colleges in Prince Edward Island and Nova Scotia where courses leading to third-year admission to degree courses elsewhere are given. Vocational and short courses are available in all three provinces. All colleges of agriculture engage in research and extension activities.

## **Section 4.—Statistics of Agriculture\***

The collection, compilation and publication of statistics relating to agriculture is a responsibility of Statistics Canada. Valuable information is obtained through the Censuses of Canada, through partial-coverage mailed questionnaire surveys and from the administrative records of government operations.

Statistics Canada collects and publishes primary and secondary statistics of agriculture on an annual and monthly basis. The primary statistics relate mainly to the reporting of crop conditions, crop and livestock estimates, wages of farm labour and prices received by farmers for their products. The secondary statistics relate to farm income and expenditure,

\* Revised in the Agriculture Division, Statistics Canada.

per capita food consumption, marketing of grain and livestock, dairying, milling and sugar industries and cold storage holdings. In the collection of annual and monthly statistics, the Canada Department of Agriculture and various provincial departments, as well as such agencies as the Canadian Grain Commission and the Canadian Wheat Board, contribute statistical data to the bureau and aid directly in Statistics Canada survey work. Many thousands of farmers throughout Canada send in reports voluntarily and dealers and processors also provide much valuable data. The figures contained in this Section do not include estimates for Newfoundland; agriculture plays a relatively minor part in Newfoundland's economy and commercial production of most agricultural products is quite small. In the following Subsections, details are given for 1970 with earlier comparisons; figures for the latest year are subject to revision and it should be noted that many of those given for earlier years have been revised since the publication of the 1970-71 Year Book.

### Subsection 1.—Income from Farming Operations

**Cash Receipts from Farming Operations.**—Estimates of cash receipts from farming operations include data concerning cash receipts from the sale of farm products, Canadian Wheat Board participation payments on previous years' grain crops, net cash advances on farm-stored grains in Western Canada, deficiency payments made by the Agricultural Stabilization Board, and supplementary payments. Farm cash receipts from the sale of farm products include the returns from all sales of agricultural products except those associated with direct inter-farm transfers. The prices used to value all products sold are prices to farmers at the farm level; they include any subsidies, bonuses and premiums that can be attributed to specific products but do not include storage, transportation, processing and handling charges which are not actually received by farmers.

Total cash receipts from farming operations for 1970, excluding supplementary payments, are estimated at \$4,108,600,000 for Canada (excluding Newfoundland). This estimate is slightly below the value of \$4,182,100,000 in 1969 and 2.0 p.c. below the average for the five-year period 1965-69. This small decrease in cash receipts can be attributed for the most part to lower Canadian Wheat Board participation payments and increased repayments of cash advances on farm-stored grains in Western Canada being only partially offset by increased receipts from the sale of wheat, barley, oilseeds, potatoes and most livestock and livestock products.

The largest increases in total cash receipts in 1970 occurred in Prince Edward Island and New Brunswick which registered rises of 16.5 p.c. and 12.2 p.c., respectively, over 1969. In British Columbia the estimate for 1970 was 3.5 p.c. above that for the previous year and in Nova Scotia receipts were very similar for both years. The declines in all the other provinces ranged from 1.2 p.c. in Ontario to 4.6 p.c. in Alberta.

#### 7.—Cash Receipts from Farming Operations (excluding Supplementary Payments),<sup>1</sup> by Province, 1966-70

Province	1966	1967	1968	1969	1970
	\$'000	\$'000	\$'000	\$'000	\$'000
Prince Edward Island.....	37,016	33,830	34,476	37,555	43,740
Nova Scotia.....	54,074	54,182	55,026	63,348	63,456
New Brunswick.....	52,626	48,139	49,034	51,285	57,531
Quebec.....	589,845	620,120	636,814	672,333	662,252
Ontario.....	1,243,473	1,281,568	1,316,868	1,370,905	1,355,237
Manitoba.....	376,520	372,700	364,660	351,444	336,258
Saskatchewan.....	948,649	976,187	893,114	709,703	691,006
Alberta.....	762,950	792,901	799,939	727,471	694,062
British Columbia.....	188,026	196,785	204,615	198,057	205,039
<b>Totals.....</b>	<b>4,253,179</b>	<b>4,376,412</b>	<b>4,354,546</b>	<b>4,182,101</b>	<b>4,108,581</b>

<sup>1</sup> See text below.

In addition to the above income, farmers received supplementary payments amounting to \$58,200,000 during 1970 compared with \$9,900,000 in 1969. For both years, supple-

mentary payments included those made under the provisions of the Prairie Farm Assistance Act.\* They also included, in 1969, payments to sugar beet growers in Ontario and, in 1970, payments made under the Lower Inventory For Tomorrow (LIFT) program. When added together, cash receipts from farming operations and supplementary payments totalled \$4,166,800,000, slightly below the 1969 level of \$4,192,000,000.

*Field Crops.*—Total cash returns to farmers during 1970 from the sale of field crops, cash advanced on farm-stored grains in Western Canada and Canadian Wheat Board participation payments amounted to \$1,397,000,000, 5.1 p.c. below the 1969 level of \$1,472,100,000. These estimates of field crop receipts for 1970 represent 34.0 p.c. of farmers' total cash receipts from farming operations compared with 35.2 p.c. in 1969. The reduction in 1970 was attributable to a large decrease in net cash advances on farm-stored grains together with a decline in Canadian Wheat Board participation payments on previous years' wheat, oats and barley crops, being only partially offset by increased returns from all items within the total crops categories except oats and sugar beets.

During 1969, cash advances on farm-stored grains exceeded repayments by \$157,900,000; in 1970, repayments exceeded cash advances by \$105,400,000. Participation payments on previous years' grain crops fell from \$68,500,000 in 1969 to \$6,600,000 in 1970.

Although average initial prices for wheat in 1970 were below those prevailing during the previous year, marketings were considerably expanded and returns from this source rose by \$95,800,000 to a value of \$568,600,000. Average barley prices at time of delivery were also lower during 1970 but the much larger marketings resulted in returns to the farmers rising by 64.4 p.c. to \$145,800,000 in 1970. With both increased marketings and higher prices, the value of sales of rapeseed almost doubled, rising from \$51,600,000 to \$97,300,000, and the rise in returns to potato producers from \$66,300,000 to \$92,500,000 was almost all attributed to a considerable increase in prices received. Smaller increases in cash receipts were registered for rye, flaxseed, soybeans and corn and receipts for tobacco rose from \$144,900,000 to \$154,900,000.

*Livestock and Livestock Products.*—Total cash receipts to farmers from the sale of livestock and livestock products in 1970 amounted to \$2,624,300,000, 1 p.c. above the 1969 level of \$2,597,100,000. The largest increase occurred in the value of sales of pigs; although average prices during the year were below those of 1969, marketings were sufficiently higher to result in cash receipts from this source rising by 5.8 p.c. to an estimated \$488,000,000, compared with \$461,300,000 in 1969. Cash receipts from cattle were higher than those received in 1969 but receipts from calves were slightly below the 1969 level; prices were higher for both cattle and calves than in the previous year. Total returns from cattle and calves showed an increase of 1 p.c., rising from \$964,100,000 in 1969 to \$974,100,000 in 1970. For dairy products, slightly higher prices combined with a small decline in marketings to give a value of sales of \$677,200,000 almost unchanged from the 1969 value of \$677,000,000. However, supplementary dairy payments at \$66,600,000 declined by 23.4 p.c. from the 1969 value of \$86,900,000. Returns to poultry meat producers increased from \$249,600,000 in 1969 to \$258,900,000 in 1970 and for eggs, lower average prices more than offset increased marketings resulting in total receipts falling by 8.7 p.c. to \$172,100,000.

*Farm Net Income.*—Two different estimates of farm net income from farming operations are prepared by Statistics Canada. *Realized net income* is obtained by adding together farm cash receipts from farming operations, supplementary payments and the value of income in kind, and deducting farm operating expenses and depreciation charges. This estimate of farm net income represents the amount of income from farming that operators have left for family living, personal taxes and investment after provision has been made for operating expenses and depreciation charges. The second estimate is referred to as *total net income* and is obtained by adjusting realized net income to take into account changes occurring in inventories of livestock and stocks of field crops on farms between the beginning

\* Payments to farmers under the provisions of the Prairie Farm Assistance Act were made from the Prairie Farm Emergency Fund to which farmers contributed by means of a 1-p.c. levy on grain marketings (see p. 541).



### 8. —Cash Receipts from Farming Operations, by Commodity or Other Source, 1966-70

Item	1966	1967	1968	1969	1970
	\$'000	\$'000	\$'000	\$'000	\$'000
Wheat.....	803,629	766,018	605,248	472,805	568,556
Wheat, Canadian Wheat Board payments.....	200,151	270,192	315,302	60,199	6,566
Oats.....	36,118	25,920	23,634	28,084	21,958
Oats, Canadian Wheat Board payments.....	6,850	12,331	8,420	4,815	—
Barley.....	84,047	99,815	84,893	38,695	145,831
Barley, Canadian Wheat Board payments.....	22,218	29,256	35,860	3,501	—
Canadian Wheat Board net cash advance payments....	-4,667	6,569	52,616	157,906	-105,397
Rye.....	15,190	7,804	5,923	4,933	8,327
Flaxseed.....	62,267	46,235	26,593	57,247	59,279
Rapeseed.....	45,950	43,192	33,197	51,576	97,300
Soybeans.....	19,793	21,353	22,363	16,661	23,914
Corn.....	28,540	28,234	24,337	28,620	30,040
Sugar beets.....	12,179	13,051	12,415	15,549	15,145
Potatoes.....	72,661	51,726	60,701	66,275	92,523
Fruits.....	75,759	79,637	86,606	79,073	81,178
Vegetables.....	86,660	97,332	94,502	94,494	97,872
Tobacco.....	117,911	156,710	142,374	144,893	154,901
Other crops.....	89,605	91,863	99,037	96,823	99,029
<b>Totals, Cash Receipts from Crops.....</b>	<b>1,774,861</b>	<b>1,847,238</b>	<b>1,734,021</b>	<b>1,472,149</b>	<b>1,397,022</b>
Cattle and calves.....	915,581	929,723	980,392	964,115	974,092
Pigs.....	414,123	408,806	409,900	461,294	487,976
Sheep and lambs.....	8,817	8,485	8,659	8,730	7,959
Dairy products.....	584,089	624,416	644,223	677,030	677,207
Poultry.....	232,569	223,608	227,952	249,642	258,859
Eggs.....	169,755	148,648	163,821	188,450	172,093
Other livestock and products.....	49,805	49,823	48,510	47,853	46,144
<b>Totals, Cash Receipts from Livestock and Products.....</b>	<b>2,374,739</b>	<b>2,393,509</b>	<b>2,483,457</b>	<b>2,597,114</b>	<b>2,624,330</b>
Forest and maple products.....	26,578	22,270	21,817	17,883	17,328
Dairy supplementary payments.....	68,591	103,229	109,700	86,942	66,603
Deficiency payments.....	8,410	10,166	5,551	8,013	3,298
<b>Totals, Cash Receipts excl. Supplementary Payments.....</b>	<b>4,253,179</b>	<b>4,376,412</b>	<b>4,354,546</b>	<b>4,182,101</b>	<b>4,108,581</b>
Supplementary payments <sup>1</sup> .....	41,345	6,137	7,968	9,935	58,207
<b>Totals, Cash Receipts.....</b>	<b>4,294,524</b>	<b>4,382,549</b>	<b>4,362,514</b>	<b>4,192,036</b>	<b>4,166,788</b>

<sup>1</sup> See text on pp. 551-552.

and end of the year. This latter estimate is used in calculating the contribution of agriculture to National Income and for making comparisons with net income of non-farm business enterprises.

For 1970, the estimated realized net income of farm operators from farming operations amounted to \$1,190,600,000, 7.6 p.c. below the 1969 value of \$1,289,100,000 and 22.6 p.c. below the 1965-69 average of \$1,537,300,000. During 1970, slightly lower farm cash receipts and income in kind, and higher farm operating expenses were only partially offset by increased supplementary payments.

The 1970 estimate of total net income, which takes into account changes in the value of farm inventories of field crops and livestock, amounted to \$1,233,000,000, 21.7 p.c. below the 1969 level of \$1,575,000,000 and 25.5 p.c. below the 1965-69 average of \$1,656,100,000. As stated on p. 551, total cash receipts from farming operations for 1970, excluding supplementary payments, were estimated at \$4,108,600,000, slightly below the value of \$4,182,100,000 received in 1969 and 2.0 p.c. below the average for the period 1965-69. Supplementary payments amounted to \$58,200,000 during 1970 compared with \$9,900,000 in 1969.

During 1970, total operating expenses and depreciation charges reached a new high of \$3,493,500,000, 2.1 p.c. above the 1969 value of \$3,421,100,000. Outlays by farmers were higher in all provinces except Saskatchewan and Alberta and, for Canada as a whole, taxes,

gross farm rent, machinery repairs, fertilizer and lime, other livestock expenses and repairs to buildings all decreased. The most notable declines were those for taxes and for fertilizer and lime. The decline in taxes paid on owned land and buildings, from \$185,600,000 in 1969 to \$176,900,000 in 1970, was almost entirely due to lower payments in Ontario resulting from the farm tax reduction program that went into effect in that province; the reduction in outlays for fertilizer that occurred in the Prairie Provinces followed the use of smaller quantities purchased at somewhat lower prices. Gross farm rents were down by 8.1 p.c., the decrease resulting from lower values of cash and share rents in the Prairie Provinces; the decline in the share rent component was a direct consequence of the lower output of grains in the Prairie Provinces brought about by the LIFT program. Outlays for wages to farm labour reached a new high at slightly more than \$320,000,000 but, in the Prairie Provinces, a reduced hired farm labour force almost offset the higher rates being paid, so that expenditures for this item in 1970 were little different from those of 1969. Total machinery expenses increased by about \$15,000,000 to reach a new record of \$573,200,000; of the components included in this category, machinery repairs declined slightly. Higher feed prices in the eastern provinces combined with an increase in quantities purchased raised outlays from \$547,300,000 in 1969 to about \$589,600,000 in 1970. Expenses incurred in repairing buildings were lower than those made in 1969 and electricity and telephone costs showed little variation.

### 9.—Net Income of Farm Operators from Farming Operations, by Item and by Province, 1966-70

(Exclusive of Newfoundland)

NOTE.—Includes estimated rental value of farm homes, supplementary payments made under the provisions of the Prairie Farm Assistance Act and payments under the Western Grain Producers' Acreage Payment Regulations.

Item and Province	1966	1967	1968	1969	1970
Item	\$'000	\$'000	\$'000	\$'000	\$'000
1. Cash receipts from farming operations.....	4,253,179	4,376,412	4,354,546	4,182,101	4,108,581
2. Income in kind.....	442,731	464,315	491,603	518,090	517,324
3. Supplementary payments.....	41,345	6,137	7,968	9,935	58,207
4. Realized gross income (Items 1+2+3).....	4,737,255	4,846,864	4,854,117	4,710,126	4,684,112
5. Operating and depreciation charges.....	2,993,568	3,221,334	3,344,360	3,421,063	3,493,482
6. Realized net income (Items 4-5).....	1,743,687	1,625,530	1,509,757	1,289,063	1,190,630
7. Value of inventory changes.....	205,177	-150,233	204,713	285,968	42,385
8. Total gross income (Items 4+7).....	4,942,432	4,696,631	5,058,830	4,996,094	4,726,497
<b>Totals, Net Income (8-5).....</b>	<b>1,948,864</b>	<b>1,475,297</b>	<b>1,714,470</b>	<b>1,575,031</b>	<b>1,233,015</b>
<b>Province</b>					
Prince Edward Island.....	16,793	5,467	8,644	8,602	13,496
Nova Scotia.....	16,990	16,936	17,880	23,860	22,968
New Brunswick.....	21,665	10,336	12,073	10,793	14,121
Quebec.....	221,767	167,855	199,857	218,205	181,891
Ontario.....	467,762	379,403	390,162	429,627	414,168
Manitoba.....	148,628	154,392	162,666	117,090	80,211
Saskatchewan.....	582,958	354,896	462,348	402,943	194,998
Alberta.....	388,457	282,953	364,010	283,418	226,886
British Columbia.....	83,844	83,059	96,830	80,493	34,276

### Subsection 2.—Volume of Agricultural Production

The index of physical volume of agricultural production for Canada (1949=100) shows that, in 1970 compared with 1969, agricultural output declined in all provinces except Ontario and British Columbia. The largest decrease was in Saskatchewan where, as a result of the LIFT program, production of grains was sharply below that of the previous year.

In the Maritime Provinces, production dropped by about 2 p.c. in both Prince Edward Island and Nova Scotia and by 11 p.c. in New Brunswick. Although production of cattle, pigs, hens and chickens was higher in all three provinces, this did not offset lower output of potatoes in Prince Edward Island and New Brunswick and of eggs in Nova Scotia and New

Brunswick. Production in Quebec remained almost unchanged in 1970, increased output of livestock and poultry offsetting reduced dairy production. Output of dairy products in Ontario was slightly lower than in 1969 but increases in grains, potatoes, cattle, pigs and poultry brought the total up 3.3 p.c. In the three Prairie Provinces, the considerable decline in wheat production resulting from the LIFT program brought about a decline in production in Manitoba, Saskatchewan and Alberta of 5.7, 24.5 and 4.4 p.c., respectively; however, apart from a small decline in the output of potatoes in Manitoba and lower production of calves in all three provinces, most of the other items increased in 1970. Higher output of potatoes, cattle, pigs, poultry, dairy products, eggs and fruit in British Columbia more than offset a slight decline in grain production and provided an increase over the previous year of 5.4 p.c.

The index of physical volume of agricultural production is an index of unduplicated gross farm production; in its construction, provision has been made to avoid double-counting of farm output. Within a province, such double-counting could occur when feed grains, credited to field crop production, are fed to livestock and appear later as livestock and livestock products. Interprovincially, this duplication could occur when feed grains produced in one province are fed in another, and when feeder cattle raised in one section of the country are shipped to another for finishing.

#### 10.—Index Numbers of Physical Volume of Agricultural Production, by Province, 1961-70 (1949=100. Exclusive of Newfoundland)

NOTE.—For a description of the index, methods and coverage, see Statistics Canada publication *Index of Farm Production 1966* (Catalogue No. 21-203).

Year	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Total
1961.....	93.3	118.5	87.1	132.7	134.1	83.7	74.7	144.2	141.3	116.2
1962.....	93.7	122.0	89.2	142.0	140.0	147.3	166.2	159.1	149.6	148.2
1963.....	94.8	123.8	86.5	142.7	140.4	128.3	222.7	183.8	148.6	162.6
1964.....	103.7	119.9	89.9	142.7	145.8	156.9	151.1	176.7	163.4	151.2
1965.....	97.5	122.9	88.2	144.4	146.6	165.7	185.6	192.1	154.8	162.1
1966.....	114.6	127.1	97.8	154.9	156.9	159.0	238.5	221.6	174.9	183.3
1967.....	102.9	131.4	90.9	160.0	154.8	163.1	150.6	184.0	175.2	158.7
1968.....	110.5	134.3	97.4	165.8	158.6	176.3	170.2	211.6	178.8	171.0
1969.....	114.5	138.8	96.6	170.4	157.7	156.9	217.5	207.2	169.1	178.6
1970.....	112.1	136.2	86.0	169.8	163.0	147.9	164.2	198.0	178.3	166.3

#### Subsection 3.—Field Crops\*

The 1970 index of field crop production for Canada (1949=100) at 177.4 was below the 1969 level of 195.5 and much below the record 203.0 reached in 1966. Compared with 1969, decreases were recorded in the three Prairie Provinces. In Manitoba, the index was 137.6 compared with the record 158.5 in 1969; in Saskatchewan, it was 204.5 against 257.7 in 1969; and in Alberta it was 223.4 compared with 237.2 in the previous year.

The 1970 field crop production indices for Central and Eastern Canada were close to the levels in 1969. The Ontario index reached a record 175.5 compared with the previous high of 167.1 in 1968; the Quebec index standing at 126.3 was below the 1969 index of 128.4 and the 1967 record of 132.0; and the index levels for Prince Edward Island, Nova Scotia and New Brunswick, with 1969 levels in brackets, were: 104.2 (115.3); 53.0 (55.7); and 82.8 (92.8), respectively.

Canada's 1970 wheat crop, estimated at 331,500,000 bu., was some 52 p.c. below the 1969 crop of 684,300,000 bu. The average yield per acre at 26.6 bu. was 3 p.c. less than the 1969 yield of 27.4 bu. but 25 p.c. above the 10-year (1959-68) average of 21.2 bu. The average protein content of the 1970 crop of hard red spring wheat was 13.2 p.c.; this level was significantly lower than the average value of 13.9 p.c. for the 1969 crop and also lower than the mean value of 13.6 p.c. for all new spring wheat crops during the 20-year period 1950-69.

\* The supply and disposition of the major Canadian grains is dealt with in Chapter XX, Pt. I, Sect. 2, under the heading of "The Grain Trade, 1969-70 and 1970-71".



Supplies of Canadian feed grains (corn, oats, barley, rye, mixed grains and buckwheat) in the crop year 1970-71 amounted to 1,377,100,000 bu., some 6 p.c. above the 1969-70 total of 1,299,300,000 bu. All feed grain production except oats contributed to the increase, as well as higher opening stocks of oats, barley and rye. Supplies of oats (Aug. 1, 1970 carryover of 141,300,000 bu. plus a crop of 367,800,000 bu.) totalled 509,200,000 bu., 2 p.c. higher than the previous year's total of 500,000,000 bu.; supplies of barley, at a record 615,800,000 bu. (carryover of 200,100,000 bu. plus a crop of 415,700,000 bu.), were 7 p.c. above the 1969-70 total of 577,800,000 bu.; supplies of rye at 33,100,000 bu. were 31 p.c. above the 1969-70 total of 25,200,000 bu.; and the 1970 crops of mixed grains reached an estimated 98,600,000 bu. The 1970 record production of grain corn, at 100,300,000 bu., was 37 p.c. larger than the 73,400,000 bu. of the previous year.

Acreages, yields and prices of the principal field crops in the three years 1968-70, with averages for 1963-67, are shown in Table 11; acreages, yields and values of field crops by province for 1969 and 1970, with averages for 1963-67, in Table 12; and acreages and production of grain in the Prairie Provinces for the years 1965-70 in Table 13.

11.—Acreages, Yields and Prices of Principal Field Crops, 1968-70, with Average for 1963-67  
(Exclusive of Newfoundland)

Crop and Year	Area	Yield per Acre	Production	Average Price	Total Value <sup>1</sup>
	'000 acres	bu.	'000 bu.	\$ per bu.	\$'000
<b>Wheat—</b>					
Av. 1963-67.....	29,076	23.3	678,779	1.69	1,145,512
1968.....	29,422	22.1	649,844	1.34	872,581
1969.....	24,968	27.4	684,276	1.27	869,188
1970.....	12,484	26.6	331,519	2	2
<b>Oats—</b>					
Av. 1963-67.....	8,209	45.6	374,344	0.70	261,224
1968.....	7,556	48.0	362,516	0.60	216,340
1969.....	7,655	48.5	371,387	0.59	218,584
1970.....	7,149	51.5	367,850	2	2
<b>Barley—</b>					
Av. 1963-67.....	6,674	34.7	231,579	0.98	226,867
1968.....	8,836	36.8	325,373	0.81	265,148
1969.....	9,535	39.7	378,383	0.66	251,334
1970.....	10,043	41.4	415,704	2	2
<b>Rye—</b>					
Av. 1963-67.....	721	20.3	14,628	1.09	15,942
1968.....	679	19.2	13,049	1.03	13,406
1969.....	927	17.8	16,493	0.89	14,670
1970.....	1,015	22.1	22,427	2	2
<b>Mixed Grains—</b>					
Av. 1963-67.....	1,615	47.1	76,112	0.90	68,250
1968.....	1,667	51.4	85,602	0.85	73,094
1969.....	1,740	50.2	87,346	0.81	70,808
1970.....	1,940	50.8	98,573	2	2
<b>Flaxseed—</b>					
Av. 1963-67.....	1,783	11.4	20,399	2.83	57,799
1968.....	1,524	12.9	19,666	2.88	56,594
1969.....	2,341	11.8	27,548	2.57	70,757
1970.....	3,368	14.5	48,932	2	2
<b>Potatoes—</b>					
Av. 1963-67.....	296	162.6	48,120	\$ per cwt.	100,208
1968.....	303	174.4	52,883	1.63	86,037
1969.....	306	169.3	51,859	2.26	117,390
1970.....	320	170.5	55,138	2	2
<b>Tame Hay—</b>					
Av. 1963-67.....	12,802	ton	'000 tons	\$ per ton	430,464
1968.....	12,438	1.84	23,554	18.28	426,134
1969.....	12,606	1.85	23,034	18.50	426,134
1970.....	13,620	2.03	25,577	18.24	466,423
		2.08	28,266	2	2

<sup>1</sup> Gross value of farm production; does not represent cash income from sales.  
going to press; will be published in Statistics Canada *Quarterly Bulletin of Agricultural Statistics* (Catalogue No. 21-003).

<sup>2</sup> Not available at time of

# 12.—Acreages, Production and Values of Field Crops, by Province, 1969 and 1970, with Average for 1963-67

(Exclusive of Newfoundland)

Field Crop and Province	Area			Total Production			Gross Farm Value <sup>1</sup>	
	Average 1963-67	1969	1970	Average 1963-67	1969	1970	Average 1963-67	1969
	'000 acres	'000 acres	'000 acres	'000 bu.	'000 bu.	'000 bu.	\$'000	\$'000
<b>Wheat</b> .....	<b>29,076</b>	<b>24,968</b>	<b>12,484</b>	<b>678,779</b>	<b>684,276</b>	<b>331,519</b>	<b>1,145,512</b>	<b>869,188</b>
Prince Edward Island...	3	2	4	82	92	125	141	129
Nova Scotia.....	1	3	4	36	138	190	62	207
New Brunswick.....	3	4	3	95	122	100	164	177
Quebec.....	23	29	29	599	754	750	1,024	1,289
Ontario—								
Winter.....	397	360	355	15,923	14,328	15,554	27,547	24,787
Spring.....	20	9	9	529	242	270	915	419
Manitoba.....	3,311	2,500	1,400	78,800	64,000	30,500	132,286	79,360
Saskatchewan.....	18,937	16,600	8,000	423,400	461,000	210,000	719,844	594,690
Alberta.....	6,273	5,300	2,600	156,600	140,000	72,000	259,464	163,800
British Columbia.....	109	160	80	2,714	3,600	2,000	4,064	4,320
<b>Oats</b> .....	<b>8,209</b>	<b>7,655</b>	<b>7,149</b>	<b>374,344</b>	<b>371,387</b>	<b>367,850</b>	<b>261,224</b>	<b>218,584</b>
Prince Edward Island...	88	71	65	4,369	4,089	2,938	3,559	2,944
Nova Scotia.....	28	24	24	1,270	1,248	1,106	1,138	1,061
New Brunswick.....	80	69	65	3,462	3,167	2,561	2,801	2,312
Quebec.....	1,074	975	925	42,431	38,415	34,595	36,992	30,348
Ontario.....	1,368	810	750	72,485	42,768	43,650	56,534	32,076
Manitoba.....	1,582	1,530	1,260	67,800	69,000	53,000	45,526	37,260
Saskatchewan.....	1,795	2,100	1,950	81,600	107,000	110,000	51,872	56,710
Alberta.....	2,123	2,000	2,050	97,600	102,000	117,000	60,542	54,060
British Columbia.....	71	76	60	3,327	3,700	3,000	2,169	1,813
<b>Barley</b> .....	<b>6,674</b>	<b>9,535</b>	<b>10,043</b>	<b>231,579</b>	<b>378,383</b>	<b>415,704</b>	<b>226,867</b>	<b>251,334</b>
Prince Edward Island...	13	20	20	541	1,054	744	585	1,054
Nova Scotia.....	3	6	6	120	304	282	149	350
New Brunswick.....	5	10	7	187	409	260	228	438
Quebec.....	16	24	24	675	866	865	688	1,022
Ontario.....	197	315	335	8,966	15,750	17,353	10,391	16,380
Manitoba.....	705	1,200	1,500	23,000	42,000	51,000	23,118	28,980
Saskatchewan.....	1,937	2,700	3,300	67,200	109,000	142,000	66,146	73,030
Alberta.....	3,656	5,100	4,700	126,800	204,000	198,000	121,832	126,480
British Columbia.....	142	160	150	4,191	5,000	5,200	3,730	3,600
<b>Fall Rye</b> .....	<b>623</b>	<b>821</b>	<b>876</b>	<b>13,055</b>	<b>14,535</b>	<b>19,800</b>	<b>14,228</b>	<b>12,975</b>
Quebec.....	4	4	4	95	112	94	106	129
Ontario.....	53	60	62	1,372	1,572	1,736	1,559	1,776
Manitoba.....	118	180	190	2,547	3,300	4,100	2,780	2,871
Saskatchewan.....	289	440	460	5,680	6,900	10,100	6,152	5,865
Alberta.....	157	133	155	3,290	2,500	3,600	3,555	2,200
British Columbia.....	2	4	4	72	151	170	76	134
<b>Spring Rye</b> .....	<b>98</b>	<b>106</b>	<b>139</b>	<b>1,573</b>	<b>1,958</b>	<b>2,627</b>	<b>1,714</b>	<b>1,695</b>
Manitoba.....	3	3	4	47	58	77	51	50
Saskatchewan.....	70	56	75	1,080	900	1,400	1,177	765
Alberta.....	26	47	60	446	1,000	1,150	485	880
<b>All Rye</b> .....	<b>721</b>	<b>927</b>	<b>1,015</b>	<b>14,628</b>	<b>16,493</b>	<b>22,427</b>	<b>15,942</b>	<b>14,670</b>
Quebec.....	4	4	4	95	112	94	106	129
Ontario.....	53	60	62	1,372	1,572	1,736	1,559	1,776
Manitoba.....	121	183	194	2,593	3,358	4,177	2,831	2,921
Saskatchewan.....	358	496	535	6,760	7,800	11,500	7,330	6,630
Alberta.....	183	180	215	3,736	3,500	4,750	4,040	3,080
British Columbia.....	2	4	4	72	151	170	76	134
<b>Peas</b> .....	<b>59</b>	<b>73</b>	<b>86</b>	<b>1,261</b>	<b>1,280</b>	<b>1,631</b>	<b>2,815</b>	<b>2,765</b>
Quebec.....	2	1	1	33	34	28	137	122
Ontario.....	3	2	2	50	38	34	138	114
Manitoba.....	43	52	60	886	750	1,020	1,800	1,402

<sup>1</sup> Values for 1970 not available at time of going to press; see footnote <sup>2</sup>, Table 11.

**12.—Acreages, Production and Values of Field Crops, by Province, 1969 and 1970,  
with Average for 1963-67—continued**

Field Crop and Province	Area			Total Production			Gross Farm Value <sup>1</sup>	
	Average 1963-67	1969	1970	Average 1963-67	1969	1970	Average 1963-67	1969
	'000 acres	'000 acres	'000 acres	'000 bu.	'000 bu.	'000 bu.	\$'000	\$'000
<b>Peas—concluded</b>								
Saskatchewan.....	2	2	2	33	44	56	69	84
Alberta.....	8	13	18	209	354	440	564	935
British Columbia.....	2	2	3	49	60	53	106	108
<b>Beans.....</b>	<b>91</b>	<b>90</b>	<b>82</b>	<b>2,032</b>	<b>1,951</b>	<b>1,857</b>	<b>8,948</b>	<b>8,200</b>
Quebec.....	1	1	1	19	18	18	85	81
Ontario.....	90	89	81	2,013	1,933	1,839	8,863	8,119
<b>Soybeans.....</b>	<b>259</b>	<b>322</b>	<b>335</b>	<b>7,422</b>	<b>7,664</b>	<b>10,385</b>	<b>29,886</b>	<b>18,624</b>
Ontario.....	259	322	335	7,422	7,664	10,385	29,886	18,624
<b>Buckwheat.....</b>	<b>59</b>	<b>109</b>	<b>152</b>	<b>1,163</b>	<b>1,695</b>	<b>2,833</b>	<b>1,499</b>	<b>2,578</b>
New Brunswick.....	2	3	4	77	100	118	93	110
Quebec.....	16	13	13	357	290	290	427	351
Ontario.....	15	14	10	375	332	240	435	408
Manitoba.....	26	50	80	353	650	1,400	545	1,138
Saskatchewan.....	—	10	25	—	171	425	—	265
Alberta.....	—	10	20	—	152	360	—	306
<b>Mixed Grains.....</b>	<b>1,615</b>	<b>1,740</b>	<b>1,940</b>	<b>76,112</b>	<b>87,346</b>	<b>98,573</b>	<b>68,250</b>	<b>70,808</b>
Prince Edward Island.....	48	60	64	2,466	3,528	2,848	2,269	2,893
Nova Scotia.....	10	12	11	437	651	508	473	618
New Brunswick.....	9	8	10	384	417	380	397	363
Quebec.....	100	94	95	3,976	3,752	3,544	4,590	4,352
Ontario.....	800	855	880	44,006	50,018	53,328	39,415	44,016
Manitoba.....	152	190	250	5,669	7,100	9,200	4,943	4,544
Saskatchewan.....	122	135	175	4,534	5,600	7,500	3,652	3,808
Alberta.....	370	380	450	14,439	16,000	21,000	12,286	9,920
British Columbia.....	4	6	6	200	280	265	225	294
<b>Flaxseed.....</b>	<b>1,783</b>	<b>2,341</b>	<b>3,368</b>	<b>29,399</b>	<b>27,548</b>	<b>48,932</b>	<b>57,799</b>	<b>79,757</b>
Quebec.....	26	17	16	377	192	194	1,111	511
Ontario.....	18	3	2	286	46	34	787	122
Manitoba.....	992	1,100	1,150	10,360	10,200	12,500	29,182	26,214
Saskatchewan.....	442	770	1,500	5,340	10,800	24,800	15,170	27,756
Alberta.....	304	450	700	4,020	6,300	11,400	11,501	16,128
British Columbia.....	2	1	2	17	10	2	47	26
<b>Rapeseed.....</b>	<b>1,170</b>	<b>2,012</b>	<b>4,059</b>	<b>18,938</b>	<b>33,400</b>	<b>72,299</b>	<b>41,595</b>	<b>76,494</b>
Manitoba.....	118	196	400	1,806	3,500	7,200	4,262	8,400
Saskatchewan.....	480	1,000	2,200	8,588	18,200	39,500	20,252	40,950
Alberta.....	572	816	1,450	8,544	11,700	25,500	20,082	27,144
<b>Sunflower Seed.....</b>	<b>57</b>	<b>48</b>	<b>70</b>	<b>33,753</b>	<b>34,000</b>	<b>55,350</b>	<b>1,714</b>	<b>1,870</b>
Manitoba.....	44	48	65	29,990	34,000	52,000	1,531	1,870
Saskatchewan.....	10	—	3	2,647	—	1,950	131	—
Alberta.....	4 <sup>3</sup>	—	2	1,394 <sup>3</sup>	—	1,400	65 <sup>2</sup>	—
<b>Mustard Seed.....</b>	<b>156</b>	<b>267</b>	<b>200</b>	<b>119,040</b>	<b>258,000</b>	<b>187,900</b>	<b>5,495</b>	<b>9,250</b>
Manitoba.....	26	37	25	18,060	30,000	21,000	927	1,020
Saskatchewan.....	60	190	120	47,470	178,000	118,200	2,139	6,230
Alberta.....	70	50	55	53,510	50,000	48,700	2,429	2,000
<b>Shelled Corn.....</b>	<b>727</b>	<b>978</b>	<b>1,197</b>	<b>57,787</b>	<b>73,426</b>	<b>100,925</b>	<b>77,233</b>	<b>96,331</b>
Quebec.....	—	45	93	—	3,483	7,285	—	4,702
Ontario.....	715	930	1,100	57,080	69,843	93,500	76,198	91,494
Manitoba.....	5	3	4	172	100	140	233	135

<sup>1</sup>For footnotes, see end of table.



**12.—Acreages, Production and Values of Field Crops, by Province, 1969 and 1970,  
with Average for 1963-67—concluded**

Field Crop and Province	Area			Total Production			Gross Farm Value <sup>1</sup>	
	Average 1963-67	1969	1970	Average 1963-67	1969	1970	Average 1963-67	1969
	'000 acres	'000 acres	'000 acres	'000 cwt.	'000 cwt.	'000 cwt.	\$'000	\$'000
<b>Potatoes</b> .....	<b>296</b>	<b>306</b>	<b>320</b>	<b>48,120</b>	<b>51,859</b>	<b>55,138</b>	<b>100,208</b>	<b>117,390</b>
Prince Edward Island...	46	53	55	8,879	10,710	10,252	16,071	21,527
Nova Scotia.....	6	4	5	825	691	697	1,787	1,658
New Brunswick.....	58	62	61	12,151	13,206	13,118	20,944	25,752
Quebec.....	72	68	67	8,585	7,698	8,140	18,153	15,781
Ontario.....	51	46	48	9,413	8,531	10,331	20,957	25,593
Manitoba.....	23	29	33	2,632	3,800	3,700	5,571	7,296
Saskatchewan.....	9	7	9	702	573	900	1,909	1,633
Alberta.....	23	27	32	3,007	4,500	5,700	8,495	11,700
British Columbia.....	10	10	11	1,927	2,150	2,300	6,321	6,450
<b>Field Roots</b> .....	<b>18</b>	<b>11</b>	<b>10</b>	<b>227</b>	<b>125</b>	<b>126</b>	<b>5,333</b>	<b>4,260</b>
Prince Edward Island...	2	2	1	32	20	13	677	680
Nova Scotia.....	2	1	1	20	13	10	480	546
New Brunswick.....	1	1	1	16	7	7	339	266
Quebec.....	5	4	3	39	36	35	761	792
Ontario.....	8	4	4	121	52	61	3,077	1,976
<b>Tame Hay</b> .....	<b>12,802</b>	<b>12,606</b>	<b>13,620</b>	<b>23,554</b>	<b>25,577</b>	<b>28,266</b>	<b>430,464</b>	<b>466,423</b>
Prince Edward Island...	179	175	180	327	354	351	4,410	5,133
Nova Scotia.....	224	207	202	473	381	368	7,668	6,858
New Brunswick.....	251	229	228	474	412	433	7,305	7,622
Quebec.....	3,363	3,300	3,350	6,057	7,029	6,934	109,928	115,978
Ontario.....	3,385	3,150	3,000	7,386	8,631	7,650	146,814	142,412
Manitoba.....	1,017	1,000	1,160	1,732	1,900	2,230	28,198	31,350
Saskatchewan.....	1,162	1,200	1,600	1,741	1,670	2,800	28,077	35,070
Alberta.....	2,786	2,900	3,400	4,353	4,000	6,200	75,507	89,000
British Columbia.....	434	445	500	1,011	1,200	1,300	22,558	33,000
<b>Fodder Corn</b> .....	<b>531</b>	<b>682</b>	<b>701</b>	<b>6,166</b>	<b>8,459</b>	<b>9,496</b>	<b>38,877</b>	<b>55,821</b>
Quebec.....	66	93	100	777	1,086	1,280	5,506	9,502
Ontario.....	415	550	565	5,047	6,985	7,854	30,828	43,097
Manitoba.....	39	23	20	235	157	120	1,599	1,099
Saskatchewan.....	6	5	4	22	20	12	266	140
British Columbia.....	5	11	12	85	211	230	677	1,983
<b>Sugar Beets</b> .....	<b>89</b>	<b>79</b>	<b>69</b>	<b>1,195</b>	<b>1,078</b>	<b>917</b>	<b>19,784</b>	<b>18,970</b>
Quebec.....	10	9	9	137	158	177	2,397	2,389
Ontario.....	15	—	—	260	—	—	3,942	—
Manitoba.....	27	31	23	273	343	216	4,494	5,937
Alberta.....	38	39	37	524	577	524	8,951	10,644

<sup>1</sup> Values for 1970 not available at time of going to press; see footnote <sup>2</sup>, Table 11.<sup>2</sup> Less than 500 acres.<sup>3</sup> Four years only.

**13.—Acreages and Production of Grain in the Prairie Provinces, 1965-70**

Grain	1965	1966	1967	1968	1969	1970
	ACREAGES					
	'000 acres	'000 acres	'000 acres	'000 acres	'000 acres	'000 acres
Wheat.....	27,790	29,166	29,570	28,860	24,400	12,000
Oats.....	5,645	5,450	5,090	5,340	5,630	5,260
Barley.....	5,741	7,010	7,600	8,330	9,000	9,500
Rye.....	743	671	628	619	859	944
Flaxseed.....	2,265	1,883	998	1,502	2,320	3,350
Rapeseed.....	1,435	1,525	1,620	1,052	2,012	4,050

## 13.—Acreages and Production of Grain in the Prairie Provinces, 1965-70—concluded

Grain	1965	1966	1967	1968	1969	1970
	PRODUCTION					
	'000 bu.	'000 bu.	'000 bu.	'000 bu.	'000 bu.	'000 bu.
Wheat.....	632,000	807,000	574,000	629,000	665,000	312,500
Oats.....	272,000	258,000	195,000	249,000	278,000	280,000
Barley.....	202,000	283,000	230,000	301,000	355,000	391,000
Rye.....	16,400	15,700	10,467	11,400	14,658	20,427
Flaxseed.....	28,400	21,500	9,000	19,300	27,300	48,700
Rapeseed.....	22,600	25,800	24,700	19,400	33,400	72,200

**Stocks of Canadian Grain.**—Table 14 shows the stocks of Canadian grain on hand in Canada and in the United States on July 31 for the years 1967-70 with averages for the five-year periods 1957-61 and 1962-66. Stocks in Canada are separated into those in commercial positions and those on farms. Stocks on farms and in country elevators in the Prairie Provinces are given separately.

## 14.—Carryover of Canadian Grain as at July 31, 1967-70, with Averages for 1957-61 and 1962-66

Grain and Year	Total in Canada and United States	Total in Canada	In Commercial Storage in Canada	On Farms in Canada	Prairie Provinces	
					On Farms	In Country Elevators
	'000 bu.	'000 bu.	'000 bu.	'000 bu.	'000 bu.	'000 bu.
<b>Wheat—</b>						
Av. 1957-61.....	635,586	635,512	425,970	209,542	206,500	245,660
Av. 1962-66.....	454,178	454,178	363,466	90,722	88,400	200,876
1967.....	576,751	576,751	371,751	205,000	202,000	197,682
1968.....	665,510	665,510	429,510	236,000	233,000	255,325
1969.....	851,828	851,828	479,628	372,200	370,000	286,226
1970.....	1,008,690	1,008,690	465,990	542,700	540,000	291,158
<b>Oats—</b>						
Av. 1957-61.....	142,818	142,797	36,437	106,360	85,000	25,426
Av. 1962-66.....	133,207	133,207	41,247	91,960	69,400	27,437
1967.....	109,791	109,791	28,791	81,000	65,000	18,647
1968.....	76,951	76,951	21,951	55,000	42,000	10,792
1969.....	128,657	128,657	34,157	94,500	80,000	18,277
1970.....	141,340	141,340	18,340	123,000	106,000	9,983
<b>Barley—</b>						
Av. 1957-61.....	126,625	126,443	60,727	65,716	63,400	38,906
Av. 1962-66.....	90,374	90,374	53,568	36,806	34,800	35,237
1967.....	131,751	131,751	64,751	67,000	63,000	41,092
1968.....	130,917	130,917	59,617	71,300	68,000	42,015
1969.....	199,383	199,383	60,883	138,500	134,000	41,547
1970.....	200,078	200,078	78,078	122,000	115,000	39,963
<b>Rye—</b>						
Av. 1957-61.....	9,162	8,931	3,729	5,202	4,840	1,778
Av. 1962-66.....	6,814	6,569	5,031	1,533	1,516	2,052
1967.....	8,295	7,833	5,633	2,200	2,200	2,337
1968.....	7,458	7,260	5,360	1,900	1,900	2,279
1969.....	8,673	8,673	3,673	5,000	5,000	1,651
1970.....	10,647	10,332	5,632	4,700	4,700	2,216
<b>Flaxseed—</b>						
Av. 1957-61.....	6,432	6,432	5,204	1,228	1,210	1,335
Av. 1962-66.....	6,818	6,818	5,492	1,326	1,320	2,043
1967.....	11,831	11,831	10,331	1,500	1,500	3,122
1968.....	4,678	4,678	4,078	600	600	1,188
1969.....	4,909	4,909	4,109	800	800	1,497
1970.....	5,970	5,970	5,370	600	600	2,899

#### Subsection 4.—Livestock and Poultry

**Livestock.**—Of the total cash receipts from farming operations in 1970 of \$4,162,000,000, about 63 p.c. (\$2,624,000,000) came from the sale of livestock and animal products; this was a slightly higher proportion than in 1969. Sales of cattle and calves at \$974,000,000 and of pigs at \$488,000,000 in 1970 represented 23 p.c. and 11 p.c., respectively, of total cash receipts, proportions that also varied little from 1969. Receipts from the sale of sheep and lambs declined to about \$8,000,000 from \$9,000,000 in the previous year.

The number of cattle and calves on farms in Canada (exclusive of Newfoundland where there were 8,554 head at the time of the 1966 Census) at June 1, 1970 was estimated at 13,060,400, an increase of 4 p.c. over 12,586,000 at the same date of 1969. This was the first increase reported in cattle numbers since 1965 when there were 13,260,000 head on farms. The swing away from dairy animals toward beef continued in 1970. Milk cow numbers at 2,550,600 decreased by 1 p.c., continuing the downward trend begun in 1962, but beef cows at 3,082,100 increased by 5 p.c. and steers at 1,832,500 by 6 p.c. Inspected slaughter of cattle in 1970 amounted to 2,700,833 head, down 1 p.c. from 1969. More beef heifers were kept back for breeding in response to higher beef prices, thus reducing total slaughter. Exports of slaughter cattle (200 lb. or more) in 1970 amounted to 17,357, which was a 35-p.c. decrease from 1969. Exports of feeder cattle were down by 71 p.c. from 26,248 in 1969 to 7,507 in 1970 but calf exports to the United States at 117,427 head were 1.5 p.c. higher. However, there was an increase in both beef exports (68 p.c.) and beef imports (21 p.c.); imports from Australia doubled compared with 1969. Weighted average price for choice slaughter steers at Toronto in 1970 was reported to be \$32.25 per cwt. as against \$31.10 in 1969, and for good feeder steers \$33.95 compared with \$31.60 in 1969. These 1970 prices were well above the five-year (1965-69) averages of \$28.10 and \$27.85, respectively. All grades of cattle brought higher prices.

There were 7,086,000 pigs on farms in Canada (excluding Newfoundland where there were 7,307 at June 1, 1966) at June 1, 1970, 23 p.c. more than on June 1, 1969 and the highest number since 1943 when there were 7,413,100. The increase took place mainly in Western Canada where the number rose by 45 p.c. and where the farmers, because of the poor international wheat sales, marketed some of their grain through pigs. There were 8,648,250 pig carcasses graded in 1970, a 16-p.c. increase over 1969, but in the last quarter of the year the numbers slaughtered were 30 p.c. higher as the full impact of the increased production began to be felt. The increased slaughter caused prices to drop making the weighted average price per cwt. for an "Index 100" pig at Toronto \$32.20 compared with \$35.70 in 1969. The lower prices, however, boosted exports of both pork and live pigs. Exports of pork increased by 22 p.c. to 70,550,548 lb. and exports of live pigs increased by 341 p.c. to 61,272 in 1970. Most of the increased export movement of live pigs was from Western Canada to the northwestern United States.

The sheep and lamb population of Canada (excluding Newfoundland where there were 14,381 on June 1, 1966) showed its first increase since 1958, rising 2 p.c. from June 1, 1969 to 898,000 on June 1, 1970; an 8-p.c. increase in Western Canada more than offset a 5-p.c. decrease in the eastern provinces. The breeding flock of sheep (one year old and over) increased 2 p.c., rising 7 p.c. in the western provinces and dropping 1 p.c. in the east. The build-up in sheep numbers was one of the reasons for the sharp decline of 15 p.c. in the inspected slaughter of sheep and lambs from 212,751 in 1969 to 181,332 in 1970. As domestic demand increased, exports of sheep and lambs dropped by 57 p.c. from 22,466 in 1969 to 9,577 in 1970. Imports of live animals rose from 22,188 head to 28,121 head but imports of mutton and lamb went down by about 7 p.c. from 75,114,300 lb. to 70,010,600 lb. The weighted average price for good lambs at Toronto was \$33.65 in 1970 compared with \$32.80 in 1969 and \$28.45 for the 1965-69 average.



# 15. —Livestock on Farms and Average Value per Head, by Province, as at June 1, 1967-70

(Exclusive of Newfoundland and the Yukon and Northwest Territories)

Province and Item	Livestock on Farms				Average Value per Head			
	1967	1968	1969	1970	1967	1968	1969	1970
	'000	'000	'000	'000	\$	\$	\$	\$
<b>Prince Edward Island—</b>								
Horses.....	4.5	4.2	4.0	3.8	143	146	154	157
Milk cows <sup>1</sup> .....	36.5	36.4	36.0	36.0	217	214	240	243
Other cattle.....	85.5	81.6	81.0	83.0	108	108	129	130
Sheep.....	14.5	12.2	11.0	10.0	19	20	21	23
Pigs.....	95.0	88.0	94.0	112.0	33	26	34	36
<b>Nova Scotia—</b>								
Horses.....	5.5	5.2	4.8	4.7	189	195	211	220
Milk cows <sup>1</sup> .....	50.0	48.0	47.0	46.6	203	213	231	248
Other cattle.....	96.0	96.0	94.0	93.4	111	116	133	140
Sheep.....	38.0	39.0	41.0	40.0	17	18	18	23
Pigs.....	65.0	70.0	71.0	72.0	33	30	33	36
<b>New Brunswick—</b>								
Horses.....	5.8	5.4	5.0	4.8	211	225	234	235
Milk cows <sup>1</sup> .....	48.5	47.0	45.0	41.0	189	201	212	230
Other cattle.....	82.5	83.0	83.0	82.0	109	115	124	133
Sheep.....	27.0	27.0	25.0	24.0	17	17	20	22
Pigs.....	41.0	49.0	52.0	54.0	33	30	35	36
<b>Quebec—</b>								
Horses.....	57.0	53.0	49.0	43.0	226	226	228	229
Milk cows <sup>1</sup> .....	1,004.0	1,023.0	1,043.0	1,046.0	227	240	253	263
Other cattle.....	792.0	824.0	852.0	899.0	100	105	116	120
Sheep.....	106.0	99.0	101.0	98.0	16	18	20	21
Pigs.....	1,330.0	1,160.0	1,115.0	1,185.0	32	27	34	37
<b>Ontario—</b>								
Horses.....	74.0	76.0	70.0	68.0	191	199	202	209
Milk cows <sup>1</sup> .....	925.0	905.0	895.0	870.0	282	293	310	315
Other cattle.....	2,240.0	2,315.0	2,309.0	2,292.0	150	152	176	180
Sheep.....	259.0	252.0	262.0	247.0	22	24	27	28
Pigs.....	2,040.0	1,995.0	2,010.0	2,145.0	33	30	41	39
<b>Manitoba—</b>								
Horses.....	37.0	38.0	36.0	30.0	124	123	122	121
Milk cows <sup>1</sup> .....	142.0	133.0	123.0	118.0	224	230	283	295
Other cattle.....	970.0	904.0	896.0	1,002.0	145	147	187	189
Sheep.....	46.0	41.0	41.0	47.0	18	19	22	23
Pigs.....	578.0	526.0	612.0	884.0	31	28	37	36
<b>Saskatchewan—</b>								
Horses.....	69.0	65.0	62.0	65.0	118	117	123	118
Milk cows <sup>1</sup> .....	145.0	127.0	117.0	115.0	227	226	284	310
Other cattle.....	2,223.0	2,096.0	2,063.0	2,271.0	152	153	197	198
Sheep.....	120.0	118.0	126.0	126.0	18	18	21	24
Pigs.....	565.0	508.0	580.0	985.0	30	28	36	35
<b>Alberta—</b>								
Horses.....	90.0	85.0	84.0	80.0	132	131	142	139
Milk cows <sup>1</sup> .....	235.0	215.0	200.0	198.0	235	232	283	295
Other cattle.....	3,170.0	3,107.0	3,182.0	3,337.0	151	149	193	194
Sheep.....	287.0	245.0	218.0	247.0	17	19	21	24
Pigs.....	1,254.0	1,245.0	1,200.0	1,600.0	30	27	36	34
<b>British Columbia—</b>								
Horses.....	27.0	28.0	26.5	26.0	159	165	178	180
Milk cows <sup>1</sup> .....	82.0	82.0	78.0	80.0	253	255	293	309
Other cattle.....	454.0	443.0	444.0	450.0	144	142	173	178
Sheep.....	65.0	58.0	58.0	59.0	21	22	25	27
Pigs.....	44.0	41.0	38.0	49.0	33	30	36	38
<b>Totals—</b>								
Horses.....	369.8	359.8	341.3	325.3	159	161	166	165
Milk cows <sup>1</sup> .....	2,668.0	2,616.4	2,584.0	2,550.6	246	255	278	287
Other cattle.....	10,113.0	9,949.6	10,004.0	10,509.4	145	146	180	183
Sheep.....	962.5	891.2	883.0	898.0	19	20	23	25
Pigs.....	6,012.0	5,682.0	5,772.0	7,086.0	32	28	37	37

<sup>1</sup> Cows and heifers, two years old or over, kept for milk purposes.

**16. —Livestock Slaughtered at Inspected Establishments, 1961-70**

(Exclusive of Newfoundland)

Year	Cattle	Calves	Sheep	Pigs
	No.	No.	No.	No.
1961.....	2,041,473	690,286	633,347	5,849,875
1962.....	2,028,159	710,229	567,463	6,031,933
1963.....	2,126,716	671,390	532,015	5,909,506
1964.....	2,422,260	750,319	497,686	6,627,600
1965.....	2,734,514	894,728	409,783	6,421,226
1966.....	2,705,139	765,596	327,621	6,129,632
1967.....	2,641,788	738,815	325,468	7,336,912
1968.....	2,784,379	668,411	282,632	7,423,754
1969.....	2,718,567	580,148	212,751	6,973,190
1970.....	2,700,833	499,162	181,332	8,280,481

**Poultry.**—Poultry on farms and their values in 1968-70 are given in Table 17; production and consumption of poultry meat are shown in Table 18.

**17.—Numbers and Values of Poultry on Farms, by Province, as at June 1, 1968-70**

Province and Year	Hens and Chickens		Turkeys		Geese		Ducks		All Poultry	
	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value
	'000	\$'000	'000	\$'000	'000	\$'000	'000	\$'000	'000	\$'000
Newfoundland.....	..	..	..	..	..	..	..	..	..	..
Prince Edward Island.....										
1968.....	313	401	3	15	4	17	3	7	323	440
1969.....	322	457	3	16	5	23	2	5	332	501
1970.....	347	507	1	6	6	30	3	8	357	551
Nova Scotia.....										
1968.....	2,605	3,539	70	305	1	5	1	3	2,677	3,852
1969.....	2,842	4,072	80	408	1	5	1	3	2,924	4,488
1970.....	3,160	4,248	110	528	2	7	2	4	3,274	4,787
New Brunswick.....										
1968.....	1,403	1,769	43	150	1	4	1	2	1,448	1,925
1969.....	1,545	2,191	20	102	1	3	1	3	1,567	2,299
1970.....	1,650	2,231	22	117	1	5	1	3	1,674	2,356
Quebec.....										
1968.....	20,100	22,936	1,530	6,682	8	31	59	121	21,697	29,770
1969.....	22,130	30,549	1,800	9,324	7	26	60	135	23,997	40,034
1970.....	24,000	26,832	2,250	11,138	7	28	64	143	26,321	38,141
Ontario.....										
1968.....	25,600	31,482	3,600	15,891	60	252	132	314	29,392	47,939
1969.....	27,480	39,852	3,800	19,380	60	246	138	333	31,478	59,811
1970.....	29,850	41,090	3,850	18,403	57	220	130	309	33,887	60,022
Manitoba.....										
1968.....	6,380	6,389	870	4,168	135	463	30	60	7,415	11,080
1969.....	7,340	8,657	825	3,680	150	532	30	64	8,345	12,933
1970.....	8,540	9,787	900	3,978	175	653	42	94	9,657	14,512
Saskatchewan.....										
1968.....	5,140	5,087	550	2,865	45	176	70	157	5,805	8,285
1969.....	5,440	6,198	500	2,450	40	176	70	176	6,050	9,000
1970.....	6,750	7,806	600	2,808	35	152	75	196	7,460	10,962
Alberta.....										
1968.....	7,940	7,895	1,040	5,645	80	294	85	181	9,145	14,015
1969.....	8,600	10,245	850	4,318	70	286	80	198	9,600	15,047
1970.....	10,150	11,932	925	4,801	70	291	75	190	11,220	17,214
British Columbia.....										
1968.....	7,390	9,389	550	3,039	10	43	22	53	7,972	12,524
1969.....	7,570	10,686	580	3,283	9	39	21	54	8,180	14,062
1970.....	8,070	11,374	700	3,976	8	35	22	58	8,800	15,443
<b>Totals.....</b>										
1968.....	76,871	88,887	8,256	38,760	344	1,285	403	898	85,874	129,830
1969.....	83,269	112,907	8,458	42,961	343	1,336	403	971	92,473	153,175
1970.....	92,517	115,807	9,358	45,755	361	1,421	414	1,005	102,650	163,988

## 18.—Production and Domestic Disappearance of Poultry Meat, 1968-70

(Eviscerated weight)

Year and Item	Net Production	Total Supply	Domestic Disappearance	Per Capita Consumption
	'000 lb.	'000 lb.	'000 lb.	lb.
<b>1968</b>				
Fowl and chickens.....	597,367	630,904	611,270	29.4
Turkeys.....	200,372	236,477	202,692	9.8
Geese.....	3,703	3,773	3,719	0.2
Ducks.....	5,189	6,889	6,532	0.3
<b>Totals, 1968</b> .....	<b>806,631</b>	<b>878,043</b>	<b>824,213</b>	<b>39.7</b>
<b>1969</b>				
Fowl and chickens.....	684,712	709,204	684,637	32.5
Turkeys.....	202,137	236,893	209,800	9.9
Geese.....	3,394	3,446	3,211	0.2
Ducks.....	4,902	6,523	6,008	0.3
<b>Totals, 1969</b> .....	<b>895,145</b>	<b>956,066</b>	<b>903,656</b>	<b>42.8</b>
<b>1970</b>				
Fowl and chickens.....	745,761	772,564	733,670	34.3
Turkeys.....	225,307	252,129	214,707	10.0
Geese.....	3,661	3,896	3,503	0.2
Ducks.....	5,432	7,236	6,570	0.3
<b>Totals, 1970</b> .....	<b>980,161</b>	<b>1,035,825</b>	<b>958,450</b>	<b>44.8</b>

## Subsection 5.—Dairying

The numbers of dairy cattle on farms have generally been declining gradually for many years; Quebec is the exception among the provinces in this respect, having increased its stock of milk cows by nearly 50,000 in the 1967-70 period. Despite the over-all decrease in numbers, the total milk production in Canada has been kept at a fairly static level by an increased output per cow. Production is concentrated in Central Canada, the Provinces of Quebec and Ontario accounting for about 73 p.c. of the total quantity.

## 19. Production and Utilization of Milk, by Province, 1968-70

Province and Year	Milk Used in Manufacture		Milk Otherwise Used			Total Milk Production
	On Farms <sup>1</sup>	In Factories	Fluid Sales <sup>2</sup>	Farm-Home Consumed	Fed on Farms	
	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 lb.
Newfoundland.....	..	..	..	..	..	..
Prince Edward Island.....	772	161,493	19,087	18,960	6,928	207,240
1969.....	562	170,881	18,211	18,970	7,126	215,750
1970.....	562	161,799	19,334	17,480	6,988	206,163
Nova Scotia.....	2,831	94,262	201,661	22,300	10,266	331,320
1968.....	2,714	111,199	199,671	21,810	10,227	345,621
1969.....	2,597	115,024	203,164	20,210	9,829	350,821

For footnotes, see end of table.



## 19.—Production and Utilization of Milk, by Province 1968-70—concluded

Province and Year	Milk Used in Manufacture		Milk Otherwise Used			Total Milk Production
	On Farms <sup>1</sup>	In Factories	Fluid Sales <sup>2</sup>	Farm-Home Consumed	Fed on Farms	
	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 lb.
New Brunswick.....1968	3,908	115,421	142,871	20,630	7,362	290,192
1969	3,557	122,879	136,440	20,750	7,585	291,211
1970	3,136	107,186	132,834	18,980	7,843	269,979
Quebec.....1968	6,786	4,980,810	1,358,817	206,300	180,220	6,732,933
1969	6,412	5,475,024	1,312,294	201,300	180,930	7,175,960
1970	6,458	5,213,377	1,345,816	196,000	182,260	6,943,911
Ontario.....1968	6,646	4,106,616	2,094,265	184,700	261,600	6,653,827
1969	6,388	4,080,602	2,102,886	178,300	257,100	6,625,276
1970	6,014	3,834,906	2,126,358	172,400	249,000	6,388,678
Manitoba.....1968	6,178	479,264	241,179	82,100	50,870	859,591
1969	5,803	483,363	233,750	77,260	50,980	851,156
1970	5,195	462,420	237,041	71,490	49,210	825,356
Saskatchewan.....1968	19,445	385,910	193,839	151,800	51,870	802,864
1969	18,743	389,116	188,799	149,900	51,900	798,458
1970	18,743	407,025	186,163	148,000	55,470	815,401
Alberta.....1968	22,019	950,289	355,503	133,300	94,630	1,555,741
1969	20,382	888,446	365,783	129,180	96,910	1,500,701
1970	19,867	900,080	386,715	127,400	94,750	1,528,842
British Columbia.....1968	2,574	355,524	522,166	22,000	25,610	927,874
1969	2,574	327,108	529,997	20,890	26,680	907,249
1970	2,480	336,080	562,877	20,330	27,590	949,357
<b>Totals.....1968</b>	<b>71,159</b>	<b>11,629,589</b>	<b>5,129,388</b>	<b>842,090</b>	<b>689,356</b>	<b>18,361,582</b>
<b>1969</b>	<b>67,135</b>	<b>12,048,618</b>	<b>5,087,831</b>	<b>818,350</b>	<b>689,438</b>	<b>18,711,382</b>
<b>1970</b>	<b>65,052</b>	<b>11,537,897</b>	<b>5,200,302</b>	<b>792,290</b>	<b>682,970</b>	<b>18,278,511</b>

<sup>1</sup> Used in farm butter only.  
purposes.

<sup>2</sup> Represents milk and cream, in milk equivalent, sold off farms for fluid

The farm value of milk production in Canada in 1970 was \$740,705,000, only slightly lower than in 1969; 63 p.c. of the total milk production was used in factories (\$364,814,000) and 29 p.c. was sold in fluid form (\$313,538,000). The 327,755,000 lb. of creamery butter produced during the year accounted for 42 p.c. of the milk output and was 6.4 p.c. lower than in 1969. Per capita consumption was 15.32 lb., slightly higher than in 1969. Quebec accounted for nearly half of the total output and Ontario followed with 28 p.c.

Both output and consumption of cheese have been gradually increasing during the past few years. The total production of factory cheese (Table 21) for 1970 was 212,377,000 lb. compared with 207,137,000 lb. for 1969, and per capita consumption of all varieties of cheese, excluding cottage cheese, was 11.72 lb., compared with 11.23 lb. for 1969. Exports of all cheese, mostly cheddar, amounted to 39,435,000 lb. in 1970 as against 35,958,000 lb. in 1969. Ontario accounted for 49 p.c. of the output and Quebec for 44 p.c.

There has been a generally decreasing trend in the production of concentrated whole milk products, which include condensed milk, evaporated milk, whole milk powder, partly skimmed evaporated milk and others. On the other hand, the general trend in the production of concentrated milk byproducts has been upward, although there was a small decrease in 1970. The latter category includes condensed skim milk, evaporated skim milk, skim milk powder, powdered buttermilk, whey powder, casein and other byproducts, but skim milk powder accounts for nearly 80 p.c. of the total production.



Well-fed Holsteins receiving "something special" from a farmhand on a farm in the Richelieu Valley, south of Montreal. The lush flat valley contains prime grazing land for hundreds of dairy cattle.

## 20.—Farm Values of Milk Production, by Province, 1968-70

Province and Year	Value of Milk Used in Manufacture		Value of Milk Otherwise Used			Value of Total Milk Production
	On Farms <sup>1</sup>	In Factories	Fluid Sales <sup>2</sup>	Farm-Home Consumed	Fed on Farms <sup>3</sup>	
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland.....	..	..	..	..	..	..
Prince Edward Island.....1968	21	4,124	982	586	773	6,486
.....1969	15	4,439	997	590	809	6,850
.....1970	15	4,414	1,127	552	793	6,901
Nova Scotia.....1968	73	2,639	12,272	687	480	16,151
.....1969	71	3,140	12,900	678	505	17,294
.....1970	68	3,309	13,879	635	460	18,351
New Brunswick.....1968	105	2,798	8,064	652	653	12,272
.....1969	97	3,002	7,776	660	683	12,218
.....1970	87	2,665	8,046	607	625	12,030
Quebec.....1968	188	159,441	73,207	6,808	10,696	250,340
.....1969	181	180,426	75,574	6,844	10,860	273,885
.....1970	182	174,280	77,426	6,723	10,001	267,862 <sup>4</sup>
Ontario.....1968	173	128,990	119,775	5,947	12,694	267,579
.....1969	169	129,344	126,491	5,795	12,219	274,018
.....1970	157	124,945	128,229	5,741	11,759	270,326 <sup>4</sup>
Manitoba.....1968	164	10,824	12,247	2,176	3,051	28,462
.....1969	159	11,098	12,447	2,047	3,001	28,752
.....1970	142	10,869	13,017	1,887	2,791	28,706

For footnotes, see end of table.

## 20.—Farm Values of Milk Production, by Province, 1968-70—concluded

Province and Year	Value of Milk Used in Manufacture		Value of Milk Otherwise Used			Value of Total Milk Production
	On Farms <sup>1</sup>	In Factories	Fluid Sales <sup>2</sup>	Farm-Home Consumed	Fed on Farms <sup>3</sup>	
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Saskatchewan.....1968	507	8,524	10,231	4,053	2,955	26,270
.....1969	489	8,737	10,507	4,047	2,970	26,750
.....1970	489	9,312	10,645	4,055	3,146	27,647
Alberta.....1968	555	25,018	18,894	4,466	6,398	55,331
.....1969	531	23,762	19,571	4,340	6,191	54,395
.....1970	526	24,395	21,141	4,319	6,017	56,398
British Columbia.....1968	62	11,252	34,829	759	1,000	47,902
.....1969	64	10,318	36,385	723	1,025	48,515
.....1970	65	10,625	40,028	703	1,063	52,484
<b>Totals.....1968</b>	<b>1,848</b>	<b>353,610</b>	<b>290,501</b>	<b>26,134</b>	<b>33,700</b>	<b>710,793</b>
<b>.....1969</b>	<b>1,776</b>	<b>374,266</b>	<b>302,648</b>	<b>25,724</b>	<b>35,263</b>	<b>742,677</b>
<b>.....1970</b>	<b>1,731</b>	<b>364,814</b>	<b>313,538</b>	<b>25,222</b>	<b>36,655</b>	<b>749,705<sup>4</sup></b>

<sup>1</sup> Used in farm butter only.<sup>2</sup> Represents the value of milk and cream sold off farms for fluid purposes.<sup>3</sup> Includes values of skim milk and buttermilk retained on farms.<sup>4</sup> Represents the market price less levies on manufacturing milk collected under provincial authority. Levies by category of milk are not available, therefore cash receipts are not additive.

## 21.—Production of Butter and Cheese, by Province, 1968-70

Province and Year	Butter				Cheese
	Creamery	Dairy	Whey	Total	Factory <sup>1</sup>
	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 lb.
Newfoundland.....	..	..	..	..	..
Prince Edward Island.....1968	4,342	33	58	4,433	1,990
.....1969	4,572	24	63	4,659	2,263
.....1970	4,446	24	64	4,534	1,583
Nova Scotia.....1968	2,035	121	—	2,156	1,203
.....1969	2,580	116	—	2,696	1,552
.....1970	2,404	111	—	2,515	1,433
New Brunswick.....1968	3,827	167	—	3,994	566
.....1969	4,124	152	—	4,276	503
.....1970	3,477	134	—	3,611	391
Quebec.....1968	154,236	290	2,495	157,021	82,907
.....1969	173,402	274	2,459	176,135	84,588
.....1970	158,833	276	2,797	161,906	93,002
Ontario.....1968	100,173	284	3,382	103,839	105,209
.....1969	98,426	273	3,212	101,911	109,611
.....1970	92,169	257	3,222	95,648	105,044
Manitoba.....1968	17,656	264	—	17,920	2,004
.....1969	17,119	248	—	17,367	3,235
.....1970	15,652	222	—	15,874	4,230
Saskatchewan.....1968	15,946	831	—	16,777	—
.....1969	15,970	801	—	16,771	—
.....1970	16,674	801	—	17,475	—
Alberta.....1968	32,040	941	6	32,987	3,457
.....1969	29,527	871	7	30,405	3,013
.....1970	29,311	849	9	30,169	3,507
British Columbia.....1968	5,641	110	—	5,751	1,713
.....1969	4,410	110	—	4,520	1,826
.....1970	4,789	106	—	4,895	1,993
<b>Totals.....1968</b>	<b>335,896</b>	<b>3,041</b>	<b>5,941</b>	<b>344,878</b>	<b>199,477<sup>2</sup></b>
<b>.....1969</b>	<b>350,130</b>	<b>2,869</b>	<b>5,741</b>	<b>358,740</b>	<b>207,137<sup>2</sup></b>
<b>.....1970</b>	<b>327,755</b>	<b>2,780</b>	<b>6,092</b>	<b>336,627</b>	<b>212,377<sup>2</sup></b>

<sup>1</sup> Factory-made cheese includes cheddar and other cheese made from whole milk and cream.<sup>2</sup> Amounts for "other cheese" are included in Quebec, Ontario and Alberta figures, but, as fewer than three firms reported in the other provinces, data cannot be included except in the Canada total.



## 22.—Production of Concentrated Milk Products, 1966-70

(Exclusive of Newfoundland)

Product	1966	1967	1968	1969	1970
	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 lb.
<b>Concentrated Whole Milk Products</b> .....	<b>363,018</b>	<b>338,687</b>	<b>343,836</b>	<b>322,808</b>	<b>290,795</b>
Condensed milk .....	22,788	23,835	25,951	21,593	16,264
Evaporated milk .....	309,696	288,107	296,618	281,881	256,433
Whole milk powder .....	7,732	8,352	3,932	2,931	<sup>1</sup>
Partly skimmed evaporated milk .....	14,153	11,778	9,660	7,926	8,139
Whole milk products <sup>2</sup> .....	8,649	6,615	7,675	8,477	9,959
<b>Concentrated Milk Byproducts</b> .....	<b>373,546</b>	<b>420,944</b>	<b>467,383</b>	<b>498,033</b>	<b>461,951</b>
Condensed skim milk .....	2,054	1,306	1,198	1,460	1,374
Evaporated skim milk .....	8,455	10,662	14,297	13,641	13,096
Skim milk powder .....	263,508	316,131	360,376	395,118	361,696
Powdered buttermilk .....	9,123	10,503	12,514	13,055	11,706
Whey powder .....	42,485	40,096	43,468	42,673	43,440
Casein .....	24,440	15,854	13,176	11,155	8,983
Other milk byproducts <sup>3</sup> .....	23,481	26,392	22,354	21,031	21,746
<b>Totals</b> .....	<b>736,564</b>	<b>759,631</b>	<b>811,219</b>	<b>820,841</b>	<b>752,746</b>

<sup>1</sup> Included with other whole milk products to avoid disclosing individual company operations. <sup>2</sup> Includes malted milk, cream powder, formula milks, whole milk powder of less than 26-p.c. fat, evaporated milk of 2-p.c. fat and concentrated liquid milk manufactured by fewer than three firms. <sup>3</sup> Includes sugar of milk (lactose), condensed buttermilk, concentrated liquid skim milk lactalbumin and special formula skim milk products manufactured by fewer than three firms.

## 23.—Production of Ice Cream Mix, by Province, 1968-70

Province	1968	1969	1970	Province	1968	1969	1970
	'000 gal.	'000 gal.	'000 gal.		'000 gal.	'000 gal.	'000 gal.
Newfoundland .....	..	..	..	Manitoba .....	1,598	1,639	1,681
Prince Edward Island ..	190	200	210	Saskatchewan .....	1,331	1,364	1,316
Nova Scotia .....	1,274	1,265	1,279	Alberta .....	2,660	2,856	2,902
New Brunswick .....	812	828	895	British Columbia .....	3,238	3,329	3,319
Quebec .....	7,431	7,724	8,042				
Ontario .....	9,363	9,900	10,154	<b>Totals</b> .....	<b>27,897</b>	<b>29,105</b>	<b>29,798</b>

The estimated total consumption of fluid milk and cream, on a milk-equivalent basis, has been on a slowly downward trend for a number of years but there was some improvement in 1970, as shown in Table 24. A longer time-period indicates a slight decline in the per capita consumption of milk and cream.

## 24.—Estimated Consumption of Milk and Cream (expressed as Milk), by Province, 1968-70

Province and Year	Estimated Consumption	Daily per Capita Consumption	Province and Year	Estimated Consumption	Daily per Capita Consumption
	'000 pt.	pt.		'000 pt.	pt.
Newfoundland.....	..	..	Manitoba.....1968	250,604	0.71
Prince Edward Island.....1968	29,494	0.73	1969	241,093	0.67
1969	28,822	0.72	1970	239,172	0.67
1970	28,538	0.71	Saskatchewan.....1968	267,937	0.76
Nova Scotia.....1968	173,613	0.63	1969	262,558	0.75
1969	171,691	0.62	1970	259,041	0.76
1970	173,158	0.62	Alberta.....1968	378,917	0.68
New Brunswick.....1968	126,745	0.56	1969	383,693	0.67
1969	121,852	0.53	1970	398,539	0.68
1970	117,685	0.52	British Columbia.....1968	421,834	0.57
Quebec.....1968	1,213,270	0.56	1969	427,041	0.56
1969	1,173,328	0.54	1970	452,099	0.58
1970	1,195,206	0.54	Totals.....1968	4,629,053	0.63
Ontario.....1968	1,766,639	0.66	1969	4,578,443	0.61
1969	1,768,362	0.65	1970	4,645,421	0.61
1970	1,781,983	0.64			

## 25.—Domestic Disappearance of Dairy Products, 1968-70

Product	1968		1969		1970	
	Total	Per Capita <sup>1</sup>	Total	Per Capita <sup>1</sup>	Total	Per Capita <sup>1</sup>
	'000 lb.	lb.	'000 lb.	lb.	'000 lb.	lb.
<b>Milk and Cream</b> .....	<b>5,971,478</b>	<b>294.68</b>	<b>5,906,191</b>	<b>287.06</b>	<b>5,992,592</b>	<b>286.91</b>
Milk.....	5,082,944	250.83	5,033,849	244.66	5,127,146	245.47
Cream as milk.....	888,534	43.85	872,342	42.40	865,446	41.44
<b>Butter</b> .....	<b>342,005</b>	<b>16.47</b>	<b>331,275</b>	<b>15.71</b>	<b>336,730</b>	<b>15.73</b>
Creamery.....	333,110	16.04	322,607	15.30	327,877	15.32
Dairy.....	3,041	0.15	2,869	0.14	2,780	0.13
Whey.....	5,854	0.28	5,799	0.27	6,073	0.28
<b>Cheese</b> .....	<b>214,758</b>	<b>10.34</b>	<b>236,729</b>	<b>11.23</b>	<b>259,794</b>	<b>11.72</b>
Cheddar.....	69,192	3.33	75,722	3.59	88,347	4.13
Process.....	90,164	4.34	96,727	4.59	95,709	4.47
Other.....	55,402	2.67	64,280	3.05	66,738	3.12
<b>Concentrated Whole Milk Products<sup>2</sup></b> .....	<b>331,676</b>	<b>15.97</b>	<b>308,663</b>	<b>14.61</b>	<b>293,230</b>	<b>13.70</b>
Evaporated.....	285,649	13.75	267,831	12.70	258,547	12.08
Condensed.....	25,619	1.23	21,189	1.00	16,669	0.78
Powdered.....	3,108	0.15	2,892	0.14	1,016	0.05
<b>Concentrated Milk Byproducts<sup>3</sup></b> .....	<b>255,632</b>	<b>12.30</b>	<b>310,546</b>	<b>14.72</b>	<b>232,486</b>	<b>10.86</b>
Evaporated.....	14,330	0.69	13,774	0.65	13,067	0.61
Condensed.....	1,206	0.06	1,456	0.07	1,398	0.07
Powdered.....	161,806	7.79	212,182	10.06	132,121	6.17
<b>All Dairy Products in Terms of Milk—</b>						
Butter.....	7,865,933	378.68	7,616,139	361.14	7,737,374	361.46
Cheese.....	2,092,573	100.74	2,316,801	109.86	2,478,944	115.81
Concentrated.....	769,454	37.04	713,418	33.83	665,571	31.09
<b>Grand Totals<sup>4</sup></b> .....	<b>17,442,302</b>	<b>846.90</b>	<b>17,349,067</b>	<b>829.66</b>	<b>17,708,053</b>	<b>834.21</b>

<sup>1</sup> Includes Newfoundland for all manufactured dairy products.

malted milk, cream powder, partly skimmed evaporated milk, whole milk powder of less than 26-p.c. fat, formula milks, evaporated milk of 2-p.c. fat, and concentrated liquid milk.

<sup>2</sup> Includes, in addition to the items listed, condensed buttermilk, powdered buttermilk, sugar of milk, casein, powdered whey, special formula skim milk products, lactalbumin and concentrated liquid skim milk. <sup>3</sup> Includes, in addition to the items listed, Since the quantities used for human consumption and livestock feeding cannot be separated, per capita figures include both.<sup>4</sup> Includes ice cream mix in terms of milk.

### Subsection 6.—Fruits, Vegetables and Other Farm Products

**Fruits.**—Commercial fruit growing in Canada is confined almost exclusively to rather limited areas in the Provinces of Nova Scotia, New Brunswick, Quebec, Ontario and British Columbia. Nova Scotia production is centred mainly in the Annapolis Valley and New Brunswick production in the St. John River Valley and Westmorland County. In Quebec the fruit growing districts are the Montreal area, the North Shore area, the Eastern Townships and the Quebec City district. Ontario fruit is grown in all the counties adjacent to the St. Lawrence River and the Great Lakes as far west as Georgian Bay, the Niagara district being the most productive. In British Columbia the four well-defined fruit areas are the Okanagan Valley, the Fraser Valley, the Kootenay and Arrow Lakes district and Vancouver Island. The climate elsewhere in Canada is not generally suitable for commercial tree-fruit culture. Apples and small fruits are produced commercially in the provinces named but tender tree fruits and commercial vineyards are largely limited to Ontario and British Columbia.

By far the most valuable fruit crop produced in Canada is apples and in 1969 the farm value for this crop was \$31,521,000. The main outlet for Canadian apples is the fresh market which absorbs about 67 p.c. of the production each year and the volume of apples for processing is about 33 p.c. of production. In Nova Scotia nearly 67 p.c. of the crop is processed; lesser quantities are processed in other producing provinces.

Strawberries are grown commercially in all provinces for which tree-fruit statistics are prepared, as well as in Prince Edward Island, but are produced over a somewhat wider area than are tree fruits. Raspberries are grown commercially in Nova Scotia, New Brunswick and Quebec but the bulk of the crop is produced in Ontario and British Columbia. The Fraser Valley of British Columbia is the most important producing area. Wild blueberries are harvested on a commercial scale in Newfoundland, Prince Edward Island, Nova Scotia, New Brunswick and Quebec. This crop is indigenous to certain areas in these provinces and a large percentage of the crop is frozen and exported. There is also some production of cultivated blueberries, particularly in British Columbia.

A marketing system has been developed for distributing fresh fruit from the specialized production areas to all parts of the country and a large proportion of the deciduous fruit consumed in Canada is grown domestically. Considerable quantities of apples, strawberries and blueberries are exported. Canning and processing industries have developed in the fruit growing districts and, although the importance of the processing market varies with different fruits, it provides a valuable outlet for substantial proportions of most Canadian-grown fruit crops.

Tables 26 and 27 show the estimated commercial production of fruit, by province and by kind, for 1968-70.

**26.—Value of Commercial Fruit Produced, by Province, 1968-70, with Average for 1963-67**  
(Farm value for unpacked fruit)

Province	Average 1963-67	1968	1969	1970
	\$'000	\$'000	\$'000	\$'000
Newfoundland.....	343	148	254	300
Prince Edward Island.....	383	333	573	362
Nova Scotia.....	4,701	4,108	5,765	5,263
New Brunswick.....	1,697	1,609	2,040	931
Quebec.....	10,503	13,018	10,112	10,381
Ontario.....	30,270	36,292	39,601	36,703
British Columbia.....	24,807	31,563	19,148	29,951
<b>Totals.....</b>	<b>72,704</b>	<b>87,071</b>	<b>77,493</b>	<b>83,891</b>



## 27.—Estimated Commercial Production and Farm Value of Fruit, 1963-70

Kind of Fruit and Year	Quantity	Weight	Farm Value	Kind of Fruit and Year	Quantity	Weight	Farm Value
	'000 bu.	'000 lb.	\$'000		'000 bu.	'000 lb.	\$'000
<b>Apples—</b>				<b>Peaches—</b>			
1968.....	20,081	903,648	39,947	1968.....	1,946	97,300	8,953
1969.....	21,822	916,524	31,521	1969.....	1,660	83,000	8,935
1970.....	20,912	878,304	..	1970.....	2,130	106,500	..
<b>Apricots—</b>				<b>Pears—</b>			
1968.....	144	7,200	491	1968.....	1,694	84,700	5,065
1969.....	2	100	11	1969.....	1,103	55,150	3,312
1970.....	166	8,300	..	1970.....	1,776	88,800	..
<b>Cherries (sour)—</b>				<b>Plums and Prunes—</b>			
1968.....	322	16,100	2,821	1968.....	384	19,200	1,416
1969.....	411	20,550	2,287	1969.....	299	14,950	1,238
1970.....	328	16,400	..	1970.....	243	12,150	..
<b>Cherries (sweet)—</b>				<b>Raspberries—</b>	'000 qt.		
1968.....	334	16,700	3,606	1968.....	10,423	15,134	3,545
1969.....	312	15,600	2,609	1969.....	11,489	16,663	5,079
1970.....	369	18,450	..	1970.....	9,002	14,326	..
<b>Strawberries—</b>	'000 qt.			<b>Grapes—</b>	'000 lb.		
1968.....	33,088	44,060	9,778	1968.....	121,789	121,789	7,586
1969.....	28,078	33,812	7,847	1969.....	124,218	124,218	9,060
1970.....	30,087	39,734	..	1970.....	144,507	144,507	..
<b>Loganberries—</b>	'000 lb.			<b>Blueberries—</b>			
1968.....	1,600	1,600	276	1968.....	15,782	15,782	3,055
1969.....	1,216	1,216	238	1969.....	28,700	28,700	4,886
1970.....	1,258	1,258	..	1970.....	28,200	28,200	..

**Vegetables.**—Estimates of acreage and production of commercial vegetables in Canada are prepared for all provinces except Newfoundland and Saskatchewan. Ontario is the largest producer, followed by Quebec and British Columbia. A wide variety of crops is grown in these three provinces and a somewhat smaller range in the Maritimes and in the Prairie Provinces.

Canning, freezing and processing of vegetables are carried on in the important producing areas. The estimates in the following tables cover output of commercial growers for processing and for sale on the fresh market but do not include averages or production of vegetables grown for home use on farms and elsewhere.

## 28.—Estimated Commercial Acreage of Vegetables, by Province, 1963-70, with Average for 1963-67

Province	Average 1963-67	1968	1969	1970
	acres	acres	acres	acres
Prince Edward Island.....	140	460	600	820
Nova Scotia.....	7,590	12,510	11,630	12,620
New Brunswick.....	6,050	1,240	1,270	1,310
Quebec.....	80,040	84,930	85,470	86,730
Ontario.....	111,610	117,470	105,420	109,810
Manitoba.....	3,530	3,550	4,440	5,810
Alberta.....	12,540	7,230	4,760	6,160
British Columbia.....	15,090	18,420	15,070	15,550
<b>Totals.....</b>	<b>236,600</b>	<b>245,810</b>	<b>228,660</b>	<b>238,810</b>

**29.—Estimated Commercial Acreage and Production of Vegetables, 1968-70,  
with Average for 1963-67**

Vegetable	Average 1963-67		1968		1969		1970	
	Area	Production	Area	Production	Area	Production	Area	Production
	acres	'000 lb.	acres	'000 lb.	acres	'000 lb.	acres	'000 lb.
Asparagus.....	3,860	5,750	3,030	4,963	2,960	5,239	3,160	5,890
Beans.....	25,920	97,800	22,850	92,200	22,480	89,416	24,640	100,685
Beets.....	2,750	48,200	3,030	55,337	2,790	46,111	3,070	50,290
Cabbage.....	7,050	140,070	7,010	146,847	7,010	138,539	7,220	153,668
Carrots.....	14,260	354,190	15,830	387,619	16,300	395,623	18,410	461,953
Cauliflower.....	3,180	35,570	3,550	34,554	4,030	42,635	4,220	47,317
Celery.....	1,090	40,730	1,170	43,717	1,040	37,312	1,110	45,445
Corn.....	54,550	397,630	62,560	494,833	57,630	395,474	62,260	460,830
Cucumbers.....	10,770	83,980	11,030	122,880	10,440	130,604	11,080	150,638
Lettuce.....	4,870	54,670	5,110	63,196	5,030	52,475	5,000	60,043
Onions.....	9,620	238,460	9,810	271,001	10,090	226,060	10,200	254,952
Parsnips.....	600	11,120	530	12,823	560	9,343	520	8,152
Peas.....	54,780	132,020	59,660	176,899	51,270	123,920	49,450	133,083
Spinach.....	1,050	10,570	1,000	9,601	980	6,057	950	7,407
Tomatoes.....	32,680	778,280	30,580	747,442	28,300	568,510	28,890	849,001
Turnips.....	9,560	227,450	9,060	247,076	7,750	170,302	8,630	216,093

**Tobacco.**—Canada produces several types of leaf tobacco but by far the most important is the flue-cured or Bright Virginia type. This is grown mainly in Ontario, along with considerable quantities of burley and smaller amounts of dark (air-cured and fire-cured) tobacco. Quebec produces smaller quantities of these types as well as some cigar and pipe tobacco and small flue-cured acreages are also harvested in Prince Edward Island, Nova Scotia and New Brunswick. Acreages planted were lower in 1970 than in 1969 and, although yields per acre in all producing areas were higher, there was a drop in total production from 247,465,000 lb. in 1969 to 221,863,000 lb. in 1970. The average value per pound was 65.8 cents in 1969 and 64.4 cents in 1970.

No information is available on the production of cigarettes for domestic consumption but, on the basis of domestic sales reported to Statistics Canada by manufacturers, the number of cigarettes sold rose from 46,270,233,000 in 1968 to 46,582,210,000 in 1969 and 49,822,534,000 in 1970.

**30.—Acreage, Production and Value of the Commercial Crop of Leaf Tobacco,  
by Province, 1962-70**

Year	Quebec			Ontario			Other Provinces		
	Har- vested Area	Pro- duction	Value	Har- vested Area	Pro- duction	Value	Har- vested Area	Pro- duction	Value
	acres	'000 lb.	\$'000	acres	'000 lb.	\$'000	acres	'000 lb.	\$'000
1962.....	8,901	12,388	4,582	121,640	190,265	91,165	515	374	157
1963.....	8,933	10,776	4,046	104,178	189,719	86,279	782	649	308
1964.....	8,334	9,919	4,299	76,267	142,738	78,390	715	757	429
1965.....	9,348	9,272	3,961	89,220	158,810	101,765	776	798	472
1966.....	8,714	12,288	6,927	120,561	220,736	156,318	923	1,158	784
1967.....	8,871	10,601	6,018	130,871	201,074	137,983	1,031	1,421	972
1968.....	9,323	12,461	7,389	123,968	204,256	144,983	1,580	2,090	1,435
1969.....	9,448	13,100	7,959	120,130	230,340	152,419	3,174	4,025	2,547
1970.....	9,861	14,624	8,293	93,888	202,301	131,481	4,464	4,938	3,141



A fully automated tomato "factory" in southern Ontario in which two full crops totalling perhaps 500,000 lb. are harvested in a year. The electronically controlled glass house covers two and a half acres.

**31.—Acreage, Production and Value of the Commercial Crop of Leaf Tobacco, by Main Type, 1968-70**

Type of Tobacco and Year	Harvested Area	Average Yield per Acre	Total Production	Average Farm Price per lb.	Gross Farm Value
	acres	lb.	'000 lb.	cts.	\$'000
Flue-cured.....1968	130,170	1,623	211,274	71.3	150,545
.....1969	127,762	1,879	248,705	66.4	159,466
.....1970	103,620	2,067	214,139	65.2	139,546
Burley.....1968	1,578	1,948	3,074	54.7	1,681
.....1969	2,120	1,686	3,574	55.9	1,999
.....1970	1,276	2,136	2,726	54.9	1,499
Cigar leaf.....1968	2,300	1,479	3,403	33.2	1,130
.....1969	1,968	1,395	2,745	35.0	970
.....1970	2,617	1,534	4,014	35.0	1,405
<b>Totals<sup>1</sup>.....1968</b>	<b>134,871</b>	<b>1,622</b>	<b>218,807</b>	<b>70.3</b>	<b>153,807</b>
<b>.....1969</b>	<b>132,752</b>	<b>1,864</b>	<b>247,465</b>	<b>65.8</b>	<b>162,925</b>
<b>.....1970</b>	<b>108,213</b>	<b>2,050</b>	<b>221,863</b>	<b>64.4</b>	<b>142,915</b>

<sup>1</sup> Includes other types not specified.

**Eggs.**—Egg production in 1970 at 495,650,000 doz. was 5.2 p.c. higher than in 1969 and 10.6 p.c. higher than the record 448,200,000 doz. produced in 1959. The number of layers increased slightly in 1970 over 1969, the rate of lay per 100 layers rose to 20,888



from 20,602 and the farm selling price of eggs averaged 35.4 cents per doz. compared with 41.5 cents. The Atlantic Provinces produced 8.2 p.c. of all eggs in 1970; Quebec, 15.9 p.c.; Ontario, 37.9 p.c.; the Prairie Provinces, 26.2 p.c.; and British Columbia, 11.8 p.c.

### 32.—Production, Utilization and Value of Farm Eggs, by Province, 1969 and 1970

Province	1969				1970			
	Average Number of Layers	Average Production per 100 Layers	Net Eggs Laid <sup>1</sup>	Total Value (Sold and Used)	Average Number of Layers	Average Production per 100 Layers	Net Eggs Laid <sup>1</sup>	Total Value (Sold and Used)
	'000	No.	'000 doz.	\$'000	'000	No.	'000 doz.	\$'000
Newfoundland.....	444	21,893	8,088	4,093	515	21,359	9,147	4,335
Prince Edward Island.....	186	19,101	2,956	1,290	188	19,810	3,102	1,253
Nova Scotia.....	1,182	21,293	20,968	9,877	1,120	21,536	20,095	8,286
New Brunswick.....	543	19,843	8,999	4,620	489	29,743	8,459	3,977
Quebec.....	4,681	19,867	77,445	36,673	4,715	20,085	78,885	34,201
Ontario.....	10,337	20,882	179,800	78,223	10,612	21,244	187,659	67,234
Manitoba.....	3,103	20,742	53,577	19,529	3,440	21,135	60,534	18,161
Saskatchewan.....	1,323	18,919	20,756	7,735	1,550	19,631	25,329	8,810
Alberta.....	2,537	19,275	40,620	16,526	2,698	19,575	43,879	16,257
British Columbia.....	3,139	22,184	58,022	24,169	3,176	22,121	58,561	23,187
<b>Totals.....</b>	<b>27,475</b>	<b>20,602</b>	<b>471,231</b>	<b>202,735</b>	<b>28,506</b>	<b>20,888</b>	<b>495,650</b>	<b>185,701</b>

<sup>1</sup> Total laid less loss.

**Wool.**—Table 33 gives the estimated production and apparent consumption of wool in Canada for the years 1967 to 1970. These estimates are not strictly comparable with those of previous years because they exclude the output of pulled wool which is now produced by fewer than three firms and, according to the provisions of the Statistics Act, cannot be shown. Canada produces only between 7 p.c. and 8 p.c. of domestic wool requirements.

### 33.—Production and Apparent Consumption of Wool, 1967-70

Item	1967	1968	1969	1970
Shorn Wool Produced—				
Yield per fleece.....	lb.			
Total yield.....	'000 lb.			
Price per pound <sup>1</sup> .....	cts.			
Total value.....	\$'000			
Totals, Wool Production.....	'000 lb.			
Apparent wool consumption <sup>2</sup> .....	'000 lb.			

<sup>1</sup> Includes Agricultural Stabilization Act payments of 27.9 cents per lb. in 1967, 29.4 cents per lb. in 1968, 29.0 cents per lb. in 1969, and 17.3 cents per lb. on the 1970 clip for qualifying grades of wool.

<sup>2</sup> See text above.

**Honey.**—As shown in Table 34, honey production in 1970 was considerably below that in 1969. Although the average production per colony was little changed, the number of beekeepers and the number of bee colonies were both lower. Honey is produced commer-

cially in all provinces except Newfoundland and yields vary to some extent from year to year. Alberta is consistently the largest producer, accounting for almost 40 p.c. of the total output in 1970. Honey bees are kept in some fruit growing districts for pollination purposes and are also used for pollination of certain seed crops. To facilitate storage, shipment and uniformity of quality, large quantities of Canadian honey are pasteurized. Beekeepers' marketing co-operatives are active in several provinces. In 1970, Canada exported 9,009,046 lb. of honey valued at \$1,867,000, almost twice the quantity exported in 1969. Exports went mainly to Britain, the United States, West Germany, Japan and the Netherlands.

### 34.—Honey and Beeswax Production 1968-70, with Average for 1963-67

Item	Average 1963-67	1968	1969	1970
Honey—				
Total production..... '000 lb.	43,629	33,372	53,312	51,041
Average production per colony..... lb.	108	81	127	125
Total value..... \$'000	7,764	6,057	8,817	8,269
Beeswax—				
Production..... '000 lb.	649	496	794	761
Value..... \$'000	308	290	494	457
<b>Total Value, Honey and Beeswax..... \$'000</b>	<b>8,072</b>	<b>6,347</b>	<b>9,311</b>	<b>8,726</b>
Beekeepers..... No.	10,290	9,600	9,310	8,480
Bee colonies..... “	406,050	414,060	419,060	407,560

### 35.—Honey Production, by Province, 1968-70, with Average for 1963-67

Province	Average 1963-67	1968	1969	1970
	'000 lb.	'000 lb.	'000 lb.	'000 lb.
Prince Edward Island.....	51	42	34	28
Nova Scotia.....	231	181	214	201
New Brunswick.....	104	138	129	129
Quebec.....	3,088	2,395	3,501	2,548
Ontario.....	9,610	8,947	8,986	7,636
Manitoba.....	7,417	4,316	9,250	9,300
Saskatchewan.....	6,230	5,085	8,668	7,611
Alberta.....	14,402	10,230	20,280	20,240
British Columbia.....	2,496	2,038	2,250	3,348
<b>Totals.....</b>	<b>43,629</b>	<b>33,372</b>	<b>53,312</b>	<b>51,041</b>

**Sugar Beets and Beet Sugar.**—Sugar beets are grown commercially in Quebec, Ontario, Manitoba and Alberta and beet sugar factories are located in these provinces. In Quebec, commercial production is centred in the St. Hilaire area of the Eastern Townships; in Ontario, production is confined to the southwestern section of the province. Alberta produces the largest crop and in that province sugar beets are grown under irrigation.

### 36.—Acreage, Yield and Value of Sugar Beets and Quantity and Value of Beet Sugar Shipments, 1964-70

Year	Sugar Beets					Beet Sugar (All Types)	
	Har- vested Area	Yield per Acre	Total Yield	Average Price per Ton	Total Farm Value	Shipments	Value
	acres	tons	tons	\$	\$'000	'000 lb.	\$'000
1964.....	101,312	12.81	1,297,912	14.71	19,091	307,652	37,033
1965.....	85,023	13.44	1,142,341	16.69	19,061	327,288	23,626
1966.....	81,272	14.35	1,166,554	16.40	19,126	276,213	19,298
1967.....	83,305	12.98	1,081,082	16.70	18,054	303,076	21,172
1968.....	79,666	13.79	1,098,221	17.23	18,923	287,053	20,100
1969.....	79,227	13.61	1,078,221	17.59	18,970	242,819	20,480
1970.....	68,771	13.33	916,906	10.70	9,811	253,161	23,320

**Maple Sugar and Maple Syrup.**—Maple syrup is produced commercially in the Provinces of Nova Scotia, New Brunswick, Quebec and Ontario. The bulk of the crop comes from the Eastern Townships of Quebec, a district famous both in Canada and in the United States as the centre of the maple products industry. Virtually all of the maple products exported go to the United States with the larger proportion moving as sugar, although substantial quantities of syrup are also shipped. Much of the syrup sold in Canada is marketed in one-gallon cans direct to the consumer from the producer but a considerable amount of both sugar and syrup is sold each year to processing firms.

### 37.—Production of Maple Sugar and Maple Syrup, by Province, 1968-70, with Average for 1963-67

Province and Year	Maple Sugar		Maple Syrup			Total Value, Sugar and Syrup
	Quantity	Value	Quantity	Average Price per gal.	Value	
	lb.	\$	gal.	\$	\$	\$
<b>Nova Scotia—</b>						
Av. 1963-67.....	8,298	6,200	3,690	6.50	24,000	30,200
1968.....	4,440	4,000	5,220	7.47	39,000	43,000
1969.....	9,012	7,000	3,658	7.38	27,000	34,000
1970.....	13,827	12,000	4,777	8.16	39,000	51,000
<b>New Brunswick—</b>						
Av. 1963-67.....	28,930	22,600	8,632	6.12	52,800	75,400
1968.....	22,660	23,000	8,460	6.86	58,000	81,000
1969.....	21,110	21,000	8,840	7.35	65,000	86,000
1970.....	28,297	29,000	7,860	7.25	57,000	86,000
<b>Quebec—</b>						
Av. 1963-67.....	475,400	270,600	2,198,200	4.15	9,112,400	9,383,000
1968.....	385,000	243,000	2,371,000	4.18	9,911,000	10,154,000
1969.....	326,000	212,000	1,678,000	4.25	7,132,000	7,344,000
1970.....	302,000	205,000	1,436,000	4.77	6,850,000	7,055,000
<b>Ontario—</b>						
Av. 1963-67.....	11,620	10,000	219,326	5.67	1,244,400	1,254,400
1968.....	11,390	12,000	227,750	6.30	1,435,000	1,447,000
1969.....	7,624	9,000	191,446	6.68	1,279,000	1,288,000
1970.....	17,475	20,000	181,947	6.83	1,243,000	1,263,000
<b>Totals—</b>						
Av. 1963-67.....	524,248	305,400	2,429,848	4.29	10,433,600	10,743,000
1968.....	423,490	282,000	2,612,430	4.38	11,443,000	11,725,000
1969.....	363,746	249,000	1,881,944	4.52	8,503,000	8,752,000
1970.....	361,599	266,000	1,630,584	5.02	8,189,600	8,455,000



**Greenhouse Operations.**—Annual surveys are made of greenhouse operations. Resulting figures are based on data reported by firms and individuals returning questionnaires, with the exception of that for cucumbers and tomatoes grown in Essex County of Ontario (the most important producing area), which are based on information obtained from the local co-operative marketing agency. Only greenhouses used for the production of items for sale are included in the survey.

### 38.—Greenhouse Operations, by Province, 1969, with Totals for 1966-69

Province	Firms Reporting	Area				Value of Sales (Wholesale)			
		Under Glass	Under Cloth	Under Plastic	Open Field	Cut Flowers and Potted Plants	Vegetables	Plants—Rooted Cuttings, etc., for Growing On	Total Sales
	No.	sq. ft.	sq. ft.	sq. ft.	acres	\$	\$	\$	\$
Nfld.....	16	36,518	—	40,722	6.8	131,890	1,200	47,560	180,650
P.E.I.....									
N.S.....	53	729,901	<sup>1</sup>	578,820	13.4	1,763,910	323,680	97,640	2,185,230
N.B.....	46	223,992	<sup>1</sup>	82,175	13.0	415,960	<sup>1</sup>	105,250	521,210
Que.....	127	782,393	41,976	397,626	50.4	1,408,710	42,020	324,870	1,775,600
Ont.....	677	18,988,349	263,460	4,396,549	344.7	16,670,030	8,775,480	3,796,300	29,241,810
Man.....	38	148,340	9,760	161,179	28.2	411,660	<sup>1</sup>	147,210	558,870
Sask.....	16	88,959	—	88,862	30.0	126,030	2,220	94,220	222,470
Alta.....	62	1,624,926	<sup>1</sup>	329,916	9.7	2,022,460	220,800	527,210	2,770,470
B.C.....	180	1,974,032	46,724	485,038	526.8	2,817,790	1,696,460	575,530	5,089,780
<b>Totals, 1969</b>	<b>1,215</b>	<b>24,597,410</b>	<b>361,920<sup>2</sup></b>	<b>6,560,887</b>	<b>1,023.0</b>	<b>25,768,440</b>	<b>11,061,860<sup>3</sup></b>	<b>5,715,790</b>	<b>42,546,090</b>
<b>1968</b>	<b>1,034</b>	<b>23,043,429<sup>4</sup></b>	<b>349,493</b>	<b>6,069,562<sup>5</sup></b>	<b>637.3</b>	<b>19,616,790<sup>4</sup></b>	<b>10,638,980<sup>4</sup></b>	<b>5,604,200<sup>4</sup></b>	<b>35,859,970</b>
<b>1967</b>	<b>887</b>	<b>23,955,938</b>	<b>270,866</b>	<b>5,367,723</b>	<b>677.8</b>	<b>24,232,496</b>	<b>9,035,283</b>	<b>5,035,315</b>	<b>38,303,094</b>
<b>1966</b>	<b>888</b>	<b>21,125,648</b>	<b>546,934</b>	<b>4,630,300</b>	<b>769.0</b>	<b>18,280,845</b>	<b>8,989,378</b>	<b>6,478,808</b>	<b>33,749,031</b>

<sup>1</sup> Fewer than three firms reporting.

<sup>2</sup> Excludes Nova Scotia, New Brunswick and Alberta.

<sup>4</sup> Excludes Newfoundland and Prince Edward Island.

<sup>3</sup> Ex-

<sup>5</sup> Figures estimated for Essex County in Ontario by Essex County associated growers.

### Subsection 7.—Prices of Agricultural Products

The monthly index of farm prices of agricultural products was designed to measure changes occurring in the average prices farmers receive at the farm from the sale of farm products. In comparing current index numbers with those prior to August 1970, the following points should be considered. Prices of all western grains used in the construction of the index prior to that date are final prices; all later figures are initial prices only for wheat, oats and barley. Any subsequent participation payments will be added to the prices currently used and the index revised upward accordingly.

### 39.—Average Index Numbers of Farm Prices of Agricultural Products, by Province, 1963-70, and Monthly Indexes for 1969 and 1970

(1961=100)

NOTE.—A description of this index, its coverage and the methods used will be found in Statistics Canada *Quarterly Bulletin of Agricultural Statistics* (Catalogue No. 21-003) for July-September 1969.

Year and Month	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Total
<b>Averages</b>										
1963.....	106.9	101.2	101.8	100.3	102.6	102.6	103.0	105.4	102.6	102.9
1964.....	118.9	98.3	111.6	101.4	100.5	99.8	101.7	102.0	99.1	101.3
1965.....	153.7	107.4	139.1	111.9	110.1	103.9	101.6	106.0	108.4	107.8
1966.....	134.0	113.9	122.5	125.2	122.0	110.9	108.1	115.9	115.1	117.0
1967.....	115.0	110.9	111.4	125.2	123.0	109.5	106.9	113.9	111.6	116.0
1968.....	123.2	114.0	116.9	126.0	124.0	105.2	99.1	109.6	118.7	114.0
1969.....	122.4	122.6	116.8	131.1	130.6	102.7	93.4	110.9	124.6	115.8
1970.....	146.2	123.6	135.8	129.3	128.8	98.8	89.9	106.3	122.4	113.4
<b>1969</b>										
January.....	117.4	117.9	113.3	129.6	126.2	100.1	92.1	106.9	124.1	112.8
February.....	115.0	117.3	113.1	130.2	125.7	100.8	92.3	107.8	125.0	113.1
March.....	115.1	117.4	109.9	129.3	125.2	100.4	92.2	108.5	125.1	112.8
April.....	114.5	117.4	110.0	128.0	126.3	102.9	94.1	110.0	125.6	113.9
May.....	123.0	119.5	114.8	130.9	128.9	104.3	97.3	117.6	127.5	117.5
June.....	120.5	122.6	114.9	131.9	135.5	107.8	97.9	118.4	128.4	120.2
July.....	122.5	122.2	118.8	131.1	135.7	106.5	98.2	117.0	128.0	119.9
August.....	142.4	126.0	125.9	133.3	135.8	102.5	92.1	110.9	127.1	117.7
September.....	120.4	128.5	116.1	131.9	133.1	102.8	92.5	110.7	121.6	116.3
October.....	123.9	128.4	118.2	131.9	132.3	102.6	90.9	108.3	119.9	115.2
November.....	126.3	126.4	123.5	131.4	131.7	101.0	90.3	106.7	121.3	114.5
December.....	129.0	127.8	123.6	133.5	131.4	101.0	90.4	108.2	122.2	115.1
<b>1970</b>										
January.....	135.1	128.0	135.7	131.5	132.2	100.4	90.8	108.4	123.3	115.4
February.....	143.5	129.2	138.7	133.3	131.7	102.2	91.8	111.7	125.1	116.7
March.....	147.5	127.3	140.1	132.9	132.8	101.9	91.8	110.5	124.2	116.7
April.....	148.5	124.8	137.1	133.2	132.2	100.2	91.3	108.6	122.8	115.8
May.....	166.7	123.6	148.1	130.9	131.6	99.5	90.9	108.0	122.6	115.3
June.....	170.6	123.9	151.1	128.9	130.3	98.8	90.5	107.0	122.2	114.5
July.....	167.3	123.1	153.7	127.3	129.1	98.7	89.7	105.4	122.3	113.3
August.....	164.6	120.9	141.9	127.5	126.8	96.7	89.0	102.8	121.6	111.7
September.....	132.0	118.2	117.6	126.4	125.1	96.7	88.6	103.6	120.4	110.4
October.....	125.1	121.1	119.4	123.9	123.3	95.9	87.7	102.0	120.4	109.0
November.....	126.5	122.2	122.4	126.5	125.0	96.3	87.9	103.7	122.0	110.4
December.....	127.4	120.9	123.6	129.3	124.9	96.8	88.6	103.9	122.4	111.0

### 40.—Average Cash Prices per Bushel of Major Canadian Grains, Crop Years Ended July 31, 1961-70

(Basis, in store Thunder Bay)

Year Ended July 31—	Averages in Cents and Eighths per Bushel				
	Wheat, <sup>1,2</sup> No. 1 N.	Oats, <sup>1</sup> No. 2 C.W.	Barley, <sup>1</sup> No. 3 C.W. — 6 Row	Rye, <sup>3</sup> No. 2 C.W.	Flaxseed, <sup>3</sup> No. 1 C.W.
	cts.	cts.	cts.	cts.	cts.
1961.....	167/4	81/2	107/5	105	311/4
1962.....	189/7	96/1	143/7	136/6	368/2
1963.....	196/1	81/6	130/6	137/2	335
1964.....	203/3	78/5	123/4	146/7	319/6
1965.....	198/3	83	133/2	125/4	320/3
1966.....	199/6	89/6	138/4	128/5	299/3
1967.....	211/6	92/5	137/1	133/1	300/2
1968.....	194/3	95/2	130/5	128/2	345/5
1969.....	194/7	85/4	119/6	124/3	330/6
1970.....	180/7	73/2	112/2	108/3	292

<sup>1</sup> Canadian Wheat Board daily fixed prices.<sup>2</sup> International Grains Arrangement, effective July 1, 1968.<sup>3</sup> Winnipeg Grain Exchange daily closing cash quotations.

## 41.—Yearly Average Prices per 100 lb. of Canadian Livestock at Principal Markets, 1967-70

Item	Toronto				Montreal			
	1967	1968	1969	1970	1967	1968	1969	1970
	\$	\$	\$	\$	\$	\$	\$	\$
Steers, good.....	27.65	26.90	29.35	30.40	27.65	27.20	29.65	30.75
Steers, medium.....	25.30	25.00	27.61	28.55	26.10	25.60	27.85	28.70
Steers, common.....	22.00	21.12	24.87	25.99	22.80	22.71	25.15	25.41
Heifers, good.....	25.60	24.91	27.32	28.60	23.75	23.40	25.65	25.70
Heifers, medium.....	23.60	23.12	25.76	26.69	21.75	21.65	23.75	24.18
Cows, good.....	20.65	19.85	22.75	23.05	21.00	20.00	22.80	23.25
Cows, medium.....	19.36	18.40	21.07	21.47	17.95	17.22	20.10	20.64
Bulls.....	21.95	21.20	23.87	24.56	21.70	21.98	24.50	25.26
Feeder steers, good.....	28.70	28.45	31.60	33.95	1	1	1	1
Feeder steers, common.....	23.75	23.60	26.66	27.80	1	1	1	1
Calves, veal, good and choice.....	36.15	35.80	38.05	40.00	37.00	39.50	42.90	43.20
Calves, veal, common and medium.....	25.83	25.30	28.68	29.00	28.35	29.37	32.75	34.06
Pigs, Grade B, dressed.....	29.70	29.80	35.70 <sup>2</sup>	32.20 <sup>2</sup>	28.40	28.70	33.90 <sup>2</sup>	33.12
Lambs, good.....	26.65	29.65	32.80	33.65	24.80	25.65	29.30	28.80
Lambs, common.....	22.65	26.57	28.52	30.57	22.20	20.94	22.70	23.12
Sheep, good.....	11.33	11.37	14.26	14.40	13.10	12.81	14.50	13.23
	Winnipeg				Edmonton			
	1967	1968	1969	1970	1967	1968	1969	1970
	\$	\$	\$	\$	\$	\$	\$	\$
Steers, good.....	26.60	26.85	29.10	30.20	25.35	24.90	27.65	29.20
Steers, medium.....	24.80	25.50	27.83	29.02	24.20	23.60	26.52	27.92
Steers, common.....	22.60	22.80	26.01	27.48	22.35	21.96	25.31	26.61
Heifers, good.....	24.35	24.53	27.50	28.09	23.65	23.43	26.00	27.20
Heifers, medium.....	22.60	23.08	25.38	27.06	22.60	21.69	24.47	26.06
Cows, good.....	19.95	19.55	23.95	23.45	18.10	17.60	21.15	21.20
Cows, medium.....	18.35	18.29	22.12	21.89	16.85	16.48	19.76	19.82
Bulls.....	21.20	21.45	24.71	25.20	19.50	19.75	22.82	24.27
Feeder steers, good.....	26.55	26.85	32.00	33.00	26.40	26.75	31.50	33.26
Feeder steers, common.....	23.15	23.50	27.58	28.71	23.25	22.90	26.74	29.34
Feeder cows and heifers, good.....	22.45	22.95	26.87	28.04	22.40	22.80	27.12	29.42
Feeder cows and heifers, common.....	19.30	19.44	23.84	24.26	19.85	19.71	24.04	24.52
Calves, veal, good and choice.....	38.85	37.90	42.05	46.70	30.40	30.35	39.65	43.05
Calves, veal, common and medium.....	27.45	30.29	32.70	37.44	23.10	23.67	27.62	28.64
Pigs, Grade B, dressed.....	27.55	28.10	35.45 <sup>2</sup>	29.20	25.70	26.50	33.30 <sup>2</sup>	28.40
Lambs, good.....	21.45	26.30	30.75	28.65	19.95	22.05	26.10	25.50
Lambs, common.....	18.35	21.99	23.45	24.22	18.20	19.80	22.15	22.21
Sheep, good.....	5.45	6.75	7.91	9.51	7.50	7.67	8.49	11.25

<sup>1</sup> No sales reported.<sup>2</sup> Pigs, Index 100, base price.

## Subsection 8.—Food Consumption

Food consumption figures represent available supplies, including production and imports, adjusted for change of stocks, exports, marketing losses and industrial uses. All calculations are made at the retail stage of distribution, except for meats for which the figures are worked out at the wholesale stage. The amount of food actually eaten would be somewhat lower than indicated because of losses and waste occurring after the products reach the hands of the consumer.

All basic foods are classified under 13 main commodity groups. The total for each group is computed using a common denominator for the group, for example: milk solids (dry weight) for the dairy products group; fat content for fats and oils; and fresh equivalent for fruits. All foods are included in their basic form, that is, as flour, fat, sugar, etc., rather than in more highly manufactured forms.



The series in Table 42 represents the official estimates of yearly supplies of food moving into consumption, expressed in pounds per capita, for the years 1964-68 as an average for comparison with the years 1969 and 1970.

**42.—Per Capita Supplies of Food Moving into Consumption 1969 and 1970, with Average for 1964-68**

Kind of Food and Weight Base	Pounds per Capita per Annum			Percentages of 1964-68 Average	
	Average 1964-68	1969	1970 <sup>a</sup>	1969	1970 <sup>a</sup>
<b>Cereals..... Retail wt.</b>	<b>151.4</b>	<b>152.9</b>	<b>145.2<sup>1</sup></b>	<b>101.0</b>	<b>95.9<sup>1</sup></b>
Flour (including rye flour).....	132.1	134.2	132.0	101.6	99.9
Oatmeal and rolled oats.....	4.6	3.4	4.0	73.9	86.9
Pot and pearl barley.....	0.1	0.1	0.1	100.0	100.0
Corn meal and flour.....	3.3	4.1	4.2	124.2	127.3
Buckwheat flour.....	0.04	0.03	0.02	75.0	50.0
Rice.....	4.6	4.4	4.9	95.6	106.5
Breakfast food.....	6.7	6.7	..	100.0	..
<b>Sugars and Syrups..... Sugar content</b>	<b>108.5</b>	<b>109.7</b>	<b>109.2</b>	<b>101.1</b>	<b>100.6</b>
Sugar..... Refined wt.	100.9	102.9	101.9	102.0	101.0
Maple sugar..... Retail wt.	0.6	0.2	0.2	33.3	33.3
Honey.....	1.9	2.0	2.1	105.3	110.5
Other.....	9.1	8.2	8.8	90.1	96.7
<b>Pulses and Nuts..... Retail wt.</b>	<b>11.7</b>	<b>9.9</b>	<b>10.7</b>	<b>84.6</b>	<b>91.4</b>
Dry beans.....	2.6	1.5	2.1	57.7	80.8
Dry peas.....	1.1	0.3	0.5	27.3	45.4
Peanuts.....	3.5	3.4	3.4	97.1	97.1
Tree nuts.....	1.2	1.4	1.3	116.7	108.3
Cocoa..... Green beans	3.3	3.3	3.4	100.0	103.0
<b>Oils and Fats..... Fat content.</b>	<b>46.7</b>	<b>41.7<sup>2</sup></b>	<b>41.1<sup>2</sup></b>	<b>89.3<sup>2</sup></b>	<b>88.0<sup>2</sup></b>
Margarine..... Retail wt.	9.0	9.7	9.3	107.8	103.3
Lard.....	7.5	..	..	..	..
Shortening and shortening oils.....	12.1	15.3	15.2	126.4	125.6
Other oils and fats.....	5.4	5.8	5.7	107.4	105.5
Butter.....	17.8	15.7	15.7	88.2	88.2
<b>Fruits..... Fresh. equiv.</b>	<b>244.7</b>	<b>245.3</b>	<b>242.5</b>	<b>100.2</b>	<b>99.1</b>
Tomatoes—					
Tomatoes, fresh..... Retail wt.	12.2	7.6	13.0	62.3	106.6
Canned..... Net wt. canned	5.2	5.8	6.3	111.5	121.2
Tomato juice.....	9.2	8.2	8.0	89.1	87.0
Pulp, paste and puree.....	1.9	2.4	1.7	126.3	89.5
Ketchup.....	3.7	4.2	4.0	113.5	108.1
Citrus Fruit—					
Fresh..... Retail wt.	24.9	27.5	27.0	110.4	108.4
Juice..... Net wt. canned	12.2	14.3	14.2	117.2	116.4
Other Fruit—					
Apples, fresh..... Retail wt.	26.6	27.8	23.8	10.45	89.5
Canned..... Net wt. canned	..	0.5	0.3	..	..
Juice.....	7.1	6.7	6.6	94.4	93.0
Frozen..... Retail wt.	0.4	0.3	0.1	75.0	25.0
Sauce..... Net wt. canned	..	1.3	1.1	..	..
Pie filling.....	..	0.5	0.4	..	..
Apriots, fresh..... Retail wt.	0.3	0.1	0.3	33.3	100.0
Canned..... Net wt. canned	0.6	0.5	0.5	83.3	83.3
Bananas, fresh..... Retail wt.	16.4	17.2	17.5	104.9	106.7
Cherries, fresh.....	1.0	0.7	0.8	70.0	80.0
Canned..... Net wt. canned	0.4	0.3	0.3	75.0	75.0
Frozen..... Retail wt.	0.6	0.5	0.6	83.3	100.0
Peaches, fresh.....	4.6	4.8	5.2	104.3	113.0
Canned..... Net wt. canned	3.9	3.8	2.9	97.4	74.4

For footnotes, see end of table, p. 582.

**42.—Per Capita Supplies of Food Moving into Consumption 1969 and 1970,  
with Average for 1964-68—continued**

Kind of Food and Weight Base	Pounds per Capita per Annum			Percentages of 1964-68 Average	
	Average 1964-68	1969	1970 <sup>a</sup>	1969	1970 <sup>a</sup>
<b>Fruits—concluded</b>					
Other Fruit—concluded					
Pears, fresh..... Retail wt.	3.0	2.4	3.1	80.0	103.3
Canned..... Net wt. canned	1.9	1.8	1.3	94.7	68.4
Pineapples, fresh..... Retail wt.	0.2	0.3	0.3	150.0	150.0
Canned..... Net wt. canned	2.3	2.2	2.0	95.7	87.0
Juice..... "	0.9	1.2	1.0	133.3	111.1
Plums, etc., fresh..... Retail wt.	1.7	1.5	1.8	88.2	105.9
Canned..... Net wt. canned	0.4	0.4	0.3	100.0	75.0
Raspberries, fresh..... Retail wt.	--	--	--	--	--
Canned..... Net wt. canned	0.2	0.1	0.1	50.0	50.0
Frozen..... Retail wt.	0.6	0.5	0.4	83.3	66.7
Strawberries, fresh..... "	1.5	1.7	1.5	113.3	100.0
Canned..... Net wt. canned	0.3	0.1	0.1	33.3	33.3
Frozen..... Retail wt.	1.4	1.4	1.5	100.0	107.1
Grapes, fresh..... "	10.6	10.1	8.2	95.3	77.4
Unspecified fruit—					
Fresh..... Retail wt.	7.8	8.8	10.2	112.8	130.8
Canned..... Net wt. canned	4.1	4.5	4.3	109.8	104.9
Frozen..... Retail wt.	0.4	0.3	--	75.0	--
Juice..... Net wt. canned	--	5.6	4.8	--	--
Jams, jellies, marmalade..... Processed wt.	--	5.2	4.9	--	--
<b>Vegetables<sup>a</sup>..... Fresh equiv.</b>	<b>113.8</b>	<b>110.6</b>	<b>117.7</b>	<b>97.2</b>	<b>103.4</b>
Fresh..... Retail wt.	72.1	70.5	77.3	97.8	107.2
Canned..... Net wt. canned	18.5	17.9	17.6	96.8	95.1
Frozen..... Retail wt.	4.7	5.4	5.6	114.9	119.1
Cabbage and greens—					
Cabbage, fresh..... Retail wt.	8.9	8.7	9.2	97.8	103.4
Lettuce..... "	9.6	10.0	11.3	104.2	117.7
Spinach, fresh..... "	0.6	0.5	0.5	83.3	83.3
Carrots—					
Fresh..... Retail wt.	15.3	16.8	17.8	109.8	116.3
Canned..... Net wt. canned	1.3	0.7	0.8	53.8	61.5
Frozen..... Retail wt.	--	0.4	0.5	--	--
Legumes—					
Beans, fresh..... Retail wt.	1.0	0.8	0.7	80.0	70.0
Canned..... Net wt. canned	3.5	3.9	3.7	111.4	105.7
Frozen..... Retail wt.	0.7	0.8	0.8	114.3	114.3
Peas, fresh..... "	0.4	--	0.2	--	50.0
Canned..... Net wt. canned	6.0	4.9	4.9	81.7	81.7
Frozen..... Retail wt.	2.4	2.4	2.4	100.0	100.0
Other vegetables—					
Beets, fresh..... Retail wt.	1.1	1.0	1.1	90.9	100.0
Canned..... Net wt. canned	0.7	0.8	0.8	114.3	114.3
Cauliflower, fresh..... Retail wt.	1.8	2.1	2.1	116.7	116.7
Celery, fresh..... "	6.3	6.3	6.4	100.0	101.6
Corn, fresh..... "	4.0	2.7	5.1	67.5	127.5
Canned..... Net wt. canned	5.1	4.8	4.3	94.1	84.3
Frozen..... Retail wt.	0.8	0.6	0.8	75.0	100.0
Cucumbers, fresh..... "	2.3	2.8	3.0	121.7	130.4
Onions, not processed..... "	12.3	13.4	12.4	108.9	100.8
Asparagus, fresh..... "	0.3	0.1	0.2	33.3	66.7
Canned..... Net wt. canned	0.4	0.4	0.4	100.0	100.0
Frozen..... Retail wt.	--	--	--	--	--
Turnips, fresh..... "	6.8	3.7	5.8	54.4	85.3
Unspecified, fresh..... "	1.7	1.6	1.5	94.1	88.2
Canned..... Net wt. canned	1.6	2.4	2.7	150.0	168.8
Frozen..... Retail wt.	0.8	1.2	1.1	150.0	137.5

For footnote, see end of table, p. 582.

**42.—Per Capita Supplies of Food Moving into Consumption 1969 and 1970,  
with Average for 1964-68—concluded**

Kind of Food and Weight Base	Pounds per Capita per Annum			Percentages of 1964-68 Average	
	Average 1964-68	1969	1970 <sup>1</sup>	1969	1970 <sup>2</sup>
<b>Potatoes.....Fresh equiv.</b>	<b>163.3</b>	<b>160.3</b>	<b>173.2</b>	<b>98.2</b>	<b>106.1</b>
White....."	162.8	160.0	172.8	98.3	106.1
Sweet....."	0.4	0.3	0.4	75.0	100.0
<b>Mushrooms.....Fresh equiv.</b>	<b>..</b>	<b>2.0</b>	<b>1.9</b>	<b>..</b>	<b>..</b>
Fresh.....Retail wt.	..	0.7	0.6	..	..
Canned.....Net wt. canned	..	0.9	0.8	..	..
<b>Meat.....Carcass wt.</b>	<b>153.4</b>	<b>156.0</b>	<b>155.4</b>	<b>101.7</b>	<b>101.3</b>
Pork....."	50.8	51.9	55.3	102.2	108.8
Beef....."	83.6	86.4	84.0	103.3	100.5
Veal....."	7.3	5.1	4.5	69.9	61.6
Mutton and lamb....."	3.5	4.0	3.5	114.3	100.0
Offal....."	3.7	4.0	3.4	108.1	91.9
Canned meat.....Net wt. canned	5.8	7.5	7.9	129.3	136.2
<b>Eggs.....Fresh equiv.</b>	<b>31.8</b>	<b>32.6</b>	<b>32.7</b>	<b>102.5</b>	<b>102.8</b>
<b>Poultry<sup>4</sup>.....Eviscerated wt.</b>	<b>38.2</b>	<b>42.8</b>	<b>44.8</b>	<b>112.0</b>	<b>117.3</b>
Chicken....."	23.6	28.8	30.5	122.0	129.2
Powl....."	4.4	3.7	3.8	84.1	86.4
Turkey....."	9.7	9.9	10.0	102.1	103.1
Duck....."	0.3	0.3	0.3	100.0	100.0
Geese....."	0.2	0.1	0.2	50.0	100.0
<b>Fish.....Edible wt.</b>	<b>12.9</b>	<b>12.9</b>	<b>12.9</b>	<b>100.0</b>	<b>100.0</b>
Fish and shellfish, fresh and frozen <sup>5</sup> ....."	8.5	8.5	9.0	100.0	105.9
Fish, cured (smoked, salted, pickled)....."	1.1	0.9	0.8	81.8	72.7
Fish and shellfish, canned....."	3.3	3.5	3.1	106.1	93.9
<b>Milk and Cheese.....Milk solids</b>	<b>60.4</b>	<b>61.7</b>	<b>58.0</b>	<b>102.1</b>	<b>96.0</b>
Cheddar cheese.....Retail wt.	3.3	3.6	4.1	109.1	124.2
Process cheese....."	4.0	4.6	4.5	115.0	112.5
Other cheese....."	2.1	3.0	3.1	142.8	147.6
Cottage cheese....."	1.6	1.8	2.0	112.5	125.0
Evaporated whole milk....."	15.5	13.3	12.7	85.8	81.9
Condensed whole milk....."	1.1	1.0	0.8	90.9	72.7
Powdered whole milk and cream....."	0.2	0.2	0.1	100.0	50.0
Miscellaneous milk products <sup>6</sup> ....."	0.4	0.2	0.2	50.0	50.0
Powdered—					
Skim milk <sup>7</sup> ....."	7.6	10.0	6.2	131.6	81.6
Buttermilk....."	0.5	0.6	0.5	120.0	100.0
Whey....."	1.9	2.0	2.1	105.3	110.5
Miscellaneous byproducts <sup>8</sup> ....."	1.7	1.7	1.7	100.0	100.0
Fluid whole milk <sup>9</sup> ....."	310.1	287.1	286.9	92.6	92.5
Milk in ice cream....."	31.3	37.7	38.9	120.4	124.3
<b>Beverages—</b>					
Tea.....Primary distribution wt.	2.4	2.4	2.2	100.0	91.7
Coffee.....green beans	8.9	9.3	9.2	104.5	103.4

<sup>1</sup> Excluding breakfast food.<sup>2</sup> Excluding lard.<sup>3</sup> Includes pickles, relishes, vegetables used in soups, etc.<sup>4</sup> Excludes Newfoundland.<sup>5</sup> Excludes herring, fresh and frozen, and all fish used for bait.<sup>6</sup> Includes formula milk, concentrated liquid milk and malted milk.<sup>7</sup> Part of this product is used for animal feeds.<sup>8</sup> Includes evaporated and condensed skim milk, condensed buttermilk, sugar of milk, formula skim milk products and concentrated liquid skim milk.<sup>9</sup> Includes cream expressed as milk.

**Disappearance of Meats and Lard.**—Production of meats from slaughter in Canada, total supply, distribution and per capita disappearance of meats and lard are shown in Table 43. All estimates are on a cold carcass-weight basis except canned meats, which are in terms of product.



**43.—Supply, Distribution and Disappearance of Meats and Lard, 1968-70,  
with Average for 1963-67**

Item	Average 1963-67	1968	1969	1970
<b>Beef—</b>				
Animals slaughtered in Canada.....	'000 3,106.9	3,446.1	3,254.6	3,220.8
Estimated dressed weight.....	'000 lb. 1,648,369	1,855,346	1,801,347	1,805,823
On hand, Jan. 1.....	" 42,148	41,874	40,064	39,944
Imports for consumption.....	" 29,764	35,826	147,532	170,274
Total Supply.....	" 1,720,281	1,933,046	1,988,943	2,016,041
Exports.....	" 58,018	68,064	67,658	119,692
Used for canning.....	" 20,497	23,192	22,337	22,392
On hand, Dec. 31.....	" 43,779	40,064	39,944	39,025
DOMESTIC DISAPPEARANCE.....	'000 lb. 1,597,987	1,801,726	1,859,004	1,834,932
PER CAPITA DISAPPEARANCE.....	lb. 81.1	86.7	88.2	85.7
<b>Veal—</b>				
Animals slaughtered in Canada.....	'000 1,161.9	1,107.8	903.5	823.2
Estimated dressed weight.....	'000 lb. 144,070	134,738	107,619	97,068
On hand, Jan. 1.....	" 4,520	4,153	4,236	4,172
Imports for consumption.....	" 1	1	1	1
Total Supply.....	" 148,590	138,891	111,855	101,240
Exports.....	" 1	1	1	1
Used for canning.....	" 1,481	1,401	1,098	991
On hand, Dec. 31.....	" 4,578	4,236	4,172	3,983
DOMESTIC DISAPPEARANCE.....	'000 lb. 142,531	133,254	106,585	96,286
PER CAPITA DISAPPEARANCE.....	lb. 7.2	6.4	5.1	4.5
<b>Mutton and Lamb—</b>				
Animals slaughtered in Canada.....	'000 5,907.8	454.4	413.0	363.8
Estimated dressed weight.....	'000 lb. 25,624	19,685	18,081	16,016
On hand, Jan. 1.....	" 9,202	8,831	11,411	13,077
Imports for consumption.....	" 43,968	71,455	69,620	63,669
Total Supply.....	" 78,994	99,971	99,112	92,762
Exports.....	" 622	94	690	635
Used for canning.....	" 1,329	1,049	1,038	970
On hand, Dec. 31.....	" 9,557	11,411	13,077	15,430
DOMESTIC DISAPPEARANCE.....	'000 lb. 67,586	87,417	84,307	75,727
PER CAPITA DISAPPEARANCE.....	lb. 3.4	4.2	4.0	3.5
<b>Pork—</b>				
Animals slaughtered in Canada.....	'000 8,180.5	9,233.7	8,730.1	10,092.6
Estimated dressed weight <sup>2</sup> .....	'000 lb. 1,048,671	1,181,301	1,134,496	1,328,114
On hand, Jan. 1.....	" 24,508	31,376	24,249	24,467
Imports for consumption.....	" 47,492	38,504	70,224	26,295
Total Supply.....	" 1,120,671	1,251,181	1,228,969	1,378,876
Exports.....	" 53,452	60,820	56,655	108,663
Used for canning.....	" 51,279	52,500	54,229	61,890
On hand, Dec. 31.....	" 27,112	24,249	24,467	24,320
DOMESTIC DISAPPEARANCE.....	'000 lb. 988,828	1,113,612	1,093,618	1,184,003
PER CAPITA DISAPPEARANCE.....	lb. 50.2	53.6	51.9	55.3
<b>Canned Meats—</b>				
Estimated production.....	'000 lb. 97,001	114,500	132,405	147,316
On hand, Jan. 1.....	" 17,484	10,944		
Imports for consumption.....	" 18,226	23,374	29,076	25,650
Total Supply.....	" 132,711	148,818	161,481	170,966
Exports.....	" 9,102	3,605	2,375	2,398
On hand, Dec. 31.....	" 13,777	8,254		
DOMESTIC DISAPPEARANCE.....	'000 lb. 109,832	136,959	159,106	168,568
PER CAPITA DISAPPEARANCE.....	lb. 5.6	6.6	7.5	7.9
<b>Offal—</b>				
Estimated production.....	'000 lb. 111,073	122,805	115,560	121,267
On hand, Jan. 1.....	" 6,494	7,618	7,306	7,598
Imports for consumption.....	" 3,240	4,082	7,726	6,945
Total Supply.....	" 120,807	134,505	130,592	135,810
Exports.....	" 36,500	45,310	38,799	52,908
Used for canning.....	" 2,178	2,321	2,230	2,353
On hand, Dec. 31.....	" 7,017	7,306	7,598	7,826
DOMESTIC DISAPPEARANCE.....	'000 lb. 75,112	79,568	81,965	72,723
PER CAPITA DISAPPEARANCE.....	lb. 3.8	3.8	4.0	3.4

For footnotes, see end of table, p. 584.

**43.—Supply, Distribution and Disappearance of Meats and Lard, 1968-70,  
with Average for 1963-67—concluded**

Item	Average 1963-67	1968	1969	1970
<b>Lard—<sup>1</sup></b>				
Estimated production..... '000 lb.	125,458	130,455	4	4
On hand, Jan. 1..... "	6,039	7,438		
Imports for consumption..... "	20,529	28,375	30,154	20,811
Total Supply..... "	152,026	166,268	4	4
Exports..... "	34	29	36	40
On hand, Dec. 31..... "	6,274	5,082		
DOMESTIC DISAPPEARANCE..... '000 lb.	145,718	161,157	4	4
PER CAPITA DISAPPEARANCE..... lb.	7.4	7.8	4	4

<sup>1</sup> Quantity small; included with beef.      <sup>2</sup> Trimmed of larding fat and excluding offal.      <sup>3</sup> Includes commercial lard production and estimated lard equivalent of renderable pork fat available from all uninspected slaughter.      <sup>4</sup> Due to changes in lard source data, comparable information is not available.

## Section 5.—Agricultural Statistics of the Census

A summary of the agricultural statistics recorded by the Census of Canada is normally presented in this Section. Such summary data resulting from the 1971 Census as are available at the time of going to press with this publication (March 1972) will be found in Appendix II. A complete list of Census publications, with their prices and an order form, is available from Statistics Canada on request. It is expected that all reports in the Advance Series will be released by the end of 1972, and that the provincial reports in the Volume Series will be released by mid-1973.

### Publications of the 1971 Census of Agriculture

#### Advance Series

Reports in this Series provide published data at earlier dates than the regular series of volume reports and include data relating to the following: areas of field crops; numbers of livestock and poultry on farms; farm machinery and equipment; areas of vegetables, fruits, greenhouses and nurseries; area and use of farm land; a classification of farms by size, economic class and product type; use of fertilizer and irrigation on farms.

#### Volume Series

Reports in this Series represent the main results of the 1971 Census of Agriculture and may be ordered as separate provincial reports or in volume sets. These provincial reports are prepared in such a way that they may be combined within a hard-covered binder (provided with the set) to form the complete subject matter of each volume.

#### VOLUME IV (PART 1)—CENSUS OF AGRICULTURE

Includes reports showing complete provincial data for Newfoundland, Prince Edward Island, Nova Scotia and New Brunswick as well as a Canada summary.

#### VOLUME IV (PART 2)—CENSUS OF AGRICULTURE

Includes reports showing complete provincial data for Quebec and Ontario.

#### VOLUME IV (PART 3)—CENSUS OF AGRICULTURE

Includes reports showing complete provincial data for Manitoba, Saskatchewan, Alberta and British Columbia.

## Section 6.—International Crop Statistics

Tables 44 and 45 are based on estimates published by the Foreign Agricultural Service, United States Department of Agriculture, and give the acreages and production of wheat and the production of oats and barley for the harvests of 1969 and 1970 with average for the years 1964-68, in the leading countries of the world.

## 44.—Estimated Acreages and Production of Wheat Harvested in 1969 and 1970 in Specified Countries, with Average for 1964-68

NOTE.—Years shown refer to years of harvest in the Northern Hemisphere. Harvests of Northern Hemisphere countries are combined with those of the Southern Hemisphere which immediately follow.

Continent and Country	Acreages of Wheat <sup>1</sup>			Production of Wheat		
	Average 1964-68	1969	1970	Average 1964-68	1969	1970
	'000 acres	'000 acres	'000 acres	'000,000 bu.	'000,000 bu.	'000,000 bu.
<b>North America</b> .....	<b>84,052</b>	<b>74,382</b>	<b>58,633</b>	<b>2,112.1</b>	<b>2,219.2</b>	<b>1,788.1</b>
Canada.....	29,433	24,957	12,478	664.0	684.3	331.5
United States.....	52,623	47,557	44,287	1,378.4	1,460.2	1,378.5
Mexico.....	1,907	1,766	1,766	68.7	73.5	77.2
Guatemala.....	91	99	99	1.1	1.3	1.0
<b>South America<sup>2</sup></b> .....	<b>18,463</b>	<b>19,054</b>	<b>15,877</b>	<b>354.8</b>	<b>373.5</b>	<b>291.2</b>
Argentina.....	13,634	12,822	8,183	269.3	257.9	154.9
Brazil.....	1,089	2,826	4,263	13.9	42.1	61.9
Chile.....	1,875	1,828	1,899	44.7	48.0	48.9
Colombia.....	252	180	175	3.9	2.9	2.9
Ecuador.....	161	198	185	2.1	2.6	2.8
Peru.....	371	371	371	5.2	5.1	5.5
Uruguay.....	1,082	830	800	15.7	14.8	14.3
<b>Europe<sup>2</sup></b> .....	<b>70,094</b>	<b>69,550</b>	<b>67,041</b>	<b>2,471.0</b>	<b>2,595.0</b>	<b>2,432.4</b>
EEC—						
Belgium.....	521	492	452	29.9	28.0	26.3
France.....	10,285	9,964	9,287	513.0	531.3	474.8
Germany, Federal						
Republic of.....	3,520	3,690	3,688	191.8	220.5	208.0
Italy.....	10,500	10,418	10,221	345.0	350.4	353.9
Luxembourg.....	42	30	25	1.6	1.8	1.0
Netherlands.....	378	383	351	25.6	24.9	23.6
Total EEC.....	25,246	24,977	24,023	1,106.9	1,156.7	1,087.6
Austria.....	739	709	679	32.3	34.9	29.8
Denmark.....	264	240	282	17.5	15.8	18.8
Finland.....	610	504	435	17.3	17.7	15.0
Greece.....	2,623	2,495	2,272	69.7	64.4	72.4
Ireland.....	188	203	232	9.1	11.9	12.1
Norway.....	10	10	10	0.5	0.4	0.4
Portugal.....	1,499	1,415	1,403	20.4	16.6	19.0
Spain.....	10,273	9,248	9,132	181.5	172.4	148.1
Sweden.....	605	655	650	35.8	33.7	36.1
Switzerland.....	252	240	235	13.5	12.7	12.5
United Kingdom.....	2,339	2,058	2,495	138.2	123.6	153.3
Total Western Europe <sup>2</sup> ..	44,648	42,751	41,847	1,642.8	1,660.8	1,604.9
Albania.....	287	—	—	3.7	—	—
Bulgaria.....	2,806	2,557	2,470	102.3	93.3	104.7
Czechoslovakia.....	2,211	2,603	2,655	86.2	119.7	110.2
German Democratic						
Republic.....	1,240	1,383	1,420	66.6	73.0	71.6
Hungary.....	2,761	3,263	3,142	93.1	131.5	100.5
Poland.....	4,182	4,854	4,940	135.0	173.1	173.4
Romania.....	7,264	6,815	5,711	187.4	159.8	123.1
Yugoslavia.....	4,693	4,987	4,523	153.9	179.3	139.3
Total Eastern Europe <sup>2</sup> ..	25,446	26,800	25,194	828.2	934.3	827.5
<b>U.S.S.R. (Europe and Asia)</b> .....	<b>169,099</b>	<b>164,075</b>	<b>161,785</b>	<b>2,424.3</b>	<b>2,289.1</b>	<b>2,939.5</b>

For footnotes, see end of table, p. 586.



#### 44. —Estimated Acreages and Production of Wheat Harvested in 1969 and 1970 in Specified Countries, with Average for 1964-68—concluded

Continent and Country	Acreages of Wheat <sup>1</sup>			Production of Wheat		
	Average 1964-68	1969	1970	Average 1964-68	1969	1970
	'000 acres	'000 acres	'000 acres	'000,000 bu.	'000,000 bu.	'000,000 bu.
<b>Africa<sup>2</sup></b> .....	<b>17,656</b>	<b>19,044</b>	<b>19,785</b>	<b>217.7</b>	<b>240.2</b>	<b>270.5</b>
Algeria.....	4,878	5,417	—	45.0	48.6	—
Ethiopia.....	1,055	—	—	11.6	—	—
Kenya.....	348	405	309	6.8	7.9	6.6
Morocco.....	4,236	4,357	4,641	50.2	59.2	68.7
South Africa, Republic of.....	3,436	4,446	4,446	34.3	48.8	50.4
Sudan.....	138	—	—	2.4	—	—
Tunisia.....	2,223	1,852	1,852	14.4	13.6	15.5
United Arab Republic (Egypt).....	1,341	1,292	—	52.9	46.6	—
<b>Asia<sup>2</sup></b> .....	<b>147,185</b>	<b>161,059</b>	<b>162,267</b>	<b>2,087.3</b>	<b>2,435.1</b>	<b>2,540.2</b>
Afghanistan.....	5,718	—	—	79.1	—	—
China, People's Republic of.....	61,503	58,045	58,292	828.9	819.4	881.8
Cyprus.....	148	151	99	2.5	3.1	1.8
India.....	33,320	39,416	41,066	444.6	685.3	738.3
Iran.....	5,138	—	—	125.6	—	—
Israel.....	183	279	264	5.5	5.7	4.6
Japan.....	1,030	709	566	40.9	27.9	17.4
Jordan.....	603	556	—	6.8	7.0	—
Korea, Republic of.....	375	380	393	11.6	12.4	13.1
Lebanon.....	148	151	151	2.0	1.8	1.8
Nepal.....	314	371	371	6.9	8.3	9.2
Pakistan.....	13,405	15,684	15,684	171.0	242.5	268.2
Syrian Arab Republic.....	2,784	2,297	—	32.0	22.0	—
Turkey.....	18,110	20,501	20,007	294.2	305.0	293.9
<b>Oceania</b> .....	<b>21,341</b>	<b>23,603</b>	<b>17,552</b>	<b>396.4</b>	<b>408.3</b>	<b>323.5</b>
Australia.....	21,001	23,344	17,292	383.3	398.1	310.0
New Zealand.....	249	259	259	13.2	10.2	13.5
<b>World Totals<sup>2</sup></b> .....	<b>527,891</b>	<b>530,766</b>	<b>502,939</b>	<b>10,063.7</b>	<b>10,560.5</b>	<b>10,585.5</b>

<sup>1</sup> Harvested acreage as far as possible.  
not shown.

<sup>2</sup> Estimated totals include allowances for producing countries

#### 45.—Estimated Production of Oats and Barley Harvested in 1969 and 1970 in Specified Countries, with Average for 1964-68

NOTE.—Years shown refer to years of harvest in the Northern Hemisphere. Harvests of Northern Hemisphere countries are combined with those of the Southern Hemisphere which immediately follow.

Continent and Country	Oats			Barley		
	Average 1964-68	1969	1970	Average 1964-68	1969	1970
	'000,000 bu.	'000,000 bu.	'000,000 bu.	'000,000 bu.	'000,000 bu.	'000,000 bu.
<b>North America</b> .....	<b>1,228.6</b>	<b>1,322.6</b>	<b>1,278.7</b>	<b>653.8</b>	<b>804.2</b>	<b>837.6</b>
Canada <sup>1</sup> .....	362.7	371.4	367.8	251.3	378.4	415.7
United States.....	861.8	949.8	909.5	393.5	417.1	410.4
Mexico.....	4.1	1.4	1.4	9.0	8.7	11.5
<b>South America</b> .....	<b>54.8</b>	<b>41.1</b>	<b>38.0</b>	<b>49.9</b>	<b>45.6</b>	<b>42.4</b>
Argentina.....	41.4	29.3	25.6	25.8	26.2	18.4
Chile.....	8.4	7.6	8.3	5.8	4.5	4.4
Colombia.....	—	—	—	4.4	3.7	4.6
Ecuador.....	—	—	—	4.5	4.6	5.1
Peru.....	—	—	—	7.9	7.8	8.0
Uruguay.....	5.0	4.1	4.1	1.4	1.9	2.0

For footnote, see end of table.

**45.—Estimated Production of Oats and Barley Harvested in 1969 and 1970 in Specified Countries, with Average for 1964-68—concluded**

Continent and Country	Oats			Barley		
	Average 1964-68	1969	1970	Average 1964-68	1969	1970
	'000,000 bu.	'000,000 bu.	'000,000 bu.	'000,000 bu.	'000,000 bu.	'000,000 bu.
<b>Europe</b> .....	<b>1,168.2</b>	<b>1,220.9</b>	<b>1,185.9</b>	<b>1,883.7</b>	<b>2,220.2</b>	<b>2,049.9</b>
EEC.....						
Belgium.....	24.6	19.5	14.9	25.0	28.0	26.3
France.....	174.8	159.1	142.6	370.7	434.1	367.8
Germany, Federal Republic of.....	169.6	205.0	171.1	191.6	235.6	218.3
Italy.....	32.6	33.8	33.5	12.3	13.4	14.5
Luxembourg.....	2.3	3.6	3.4	1.7	3.0	2.3
Netherlands.....	25.1	23.1	19.4	17.6	17.9	15.3
Total EEC.....	429.1	444.2	384.9	618.9	732.0	644.6
Austria.....	21.8	19.8	18.7	31.0	42.9	41.9
Denmark.....	58.3	52.7	43.5	198.6	241.4	221.1
Finland.....	64.1	79.0	86.7	26.9	38.7	40.5
Greece.....	10.7	8.2	7.6	24.3	24.3	35.8
Ireland.....	20.3	16.8	14.5	27.7	33.7	34.4
Norway.....	8.7	9.6	14.4	22.7	22.3	26.2
Portugal.....	6.7	5.4	5.2	3.1	2.5	2.4
Spain.....	30.5	36.7	28.2	111.2	177.1	142.4
Sweden.....	94.5	77.8	113.1	69.4	72.3	85.8
Switzerland.....	2.3	2.5	2.3	4.9	6.1	6.4
United Kingdom.....	88.3	90.9	89.5	389.1	397.9	367.2
Total Western Europe.....	835.1	843.6	808.4	1,527.7	1,791.1	1,648.7
Bulgaria.....	9.4	5.4	6.8	41.3	42.2	46.5
Czechoslovakia.....	53.5	66.8	64.8	77.9	114.8	105.6
German Democratic Republic.....	54.4	57.9	51.7	80.1	94.9	89.6
Hungary.....	4.8	5.5	4.0	42.1	41.7	25.5
Poland.....	179.1	211.0	220.5	64.7	89.5	89.1
Romania.....	9.0	9.4	8.6	22.4	25.0	26.5
Yugoslavia.....	23.1	21.2	21.3	27.4	21.1	18.5
Total Eastern Europe.....	333.1	377.3	377.5	355.9	429.1	401.2
<b>U.S.S.R. (Europe and Asia)</b> .....	<b>456.4</b>	<b>737.2</b>	<b>723.4</b>	<b>1,029.7</b>	<b>1,230.9</b>	<b>1,354.9</b>
<b>Africa</b> <sup>2</sup> .....	<b>11.9</b>	<b>9.7</b>	<b>11.6</b>	<b>123.0</b>	<b>131.3</b>	<b>137.5</b>
Algeria.....	—	—	—	15.3	23.0	16.1
Morocco.....	1.2	1.1	1.5	56.8	60.1	67.8
South Africa, Republic of.....	9.0	7.6	8.8	1.6	1.0	1.2
Tunisia.....	—	—	—	5.4	3.7	8.7
United Arab Republic (Egypt).....	—	—	—	5.3	4.6	—
<b>Asia</b> <sup>2</sup> .....	<b>94.9</b>	<b>92.0</b>	<b>95.8</b>	<b>838.2</b>	<b>842.9</b>	<b>829.5</b>
Cyprus.....	—	—	—	3.6	4.8	2.3
India.....	—	—	—	117.5	111.3	124.7
Iran.....	—	—	—	47.7	55.1	55.1
Iraq.....	—	—	—	35.6	33.5	32.2
Israel.....	—	—	—	2.6	1.0	1.0
Japan.....	7.6	4.6	4.2	51.4	37.3	26.3
Korea, Republic of.....	—	—	—	85.8	94.9	90.7
Pakistan.....	—	—	—	5.2	5.8	5.9
Syrian Arab Republic.....	—	—	—	20.5	16.1	14.9
Turkey.....	31.0	32.2	29.6	153.4	169.9	160.8
<b>Oceania</b> .....	<b>95.9</b>	<b>119.4</b>	<b>122.6</b>	<b>62.0</b>	<b>89.8</b>	<b>120.0</b>
Australia.....	92.9	115.6	118.8	54.6	82.2	109.4
New Zealand.....	3.0	3.8	3.9	7.4	7.6	10.6
<b>World Totals</b> <sup>2</sup> .....	<b>3,140.7</b>	<b>3,542.9</b>	<b>3,456.0</b>	<b>4,640.2</b>	<b>5,367.9</b>	<b>5,371.9</b>

<sup>1</sup> In bushels of 34 lb.<sup>2</sup> Estimated totals include allowances for producing countries not shown.

## CHAPTER XII.—MINES AND MINERALS

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*The interpretation of the symbols used in the tables throughout the Year Book will be found on p. vii of this volume.*

### Section 1.—Canada's Mineral Industry\*

The Canadian mineral industry achieved impressive growth in output and sales in 1970. The pause in apparent growth of the industry in 1969 when strikes reduced possible output was fully corrected and new expansion records were set.† The annual rate of growth of the industry between 1968 and 1970 averaged close to 11 p.c., measured by value of shipments. This was achieved in a context of hesitation in growth of other sectors of the Canadian economy and in the face of slow-down of United States economic and mineral-imports growth. Also, the revaluation of the Canadian dollar at the end of May 1970 might have reduced export earnings for some commodities.

Canada's mineral production in 1970 was valued at \$5,769,000,000 (preliminary), compared with \$4,738,000,000 in 1969 and \$4,722,000,000 in 1968. Physical volume contributed strongly to the two-year increase with average annual increase in mine output at about 6.3 p.c. and average annual increase in volume of processing at close to 4 p.c. Some shift of output-volume balance toward more expensive commodities and some unit price increases accounted for the remainder of the rise in output value.

Canada produces about 60 different minerals from domestic deposits. The ten leading minerals comprised 81.8 p.c. of total output by value in 1970 compared with 79.1 p.c. in 1969 and 78.7 p.c. in 1968. The 1970 value for the ten leaders totalled \$4,720,000,000 with individual values at: petroleum, \$1,126,999,000; nickel, \$829,643,800; copper, \$782,490,300; iron ore, \$589,126,000; zinc, \$385,919,600; natural gas, \$350,953,000; asbestos, \$215,270,000; cement, \$160,440,000; natural gas byproducts, \$159,583,000; and lead \$121,246,900. The first four made up 57.7 p.c. of all mineral output value in 1970, whereas in 1960 they comprised 45.4 p.c. and in 1950, 32.7 p.c.

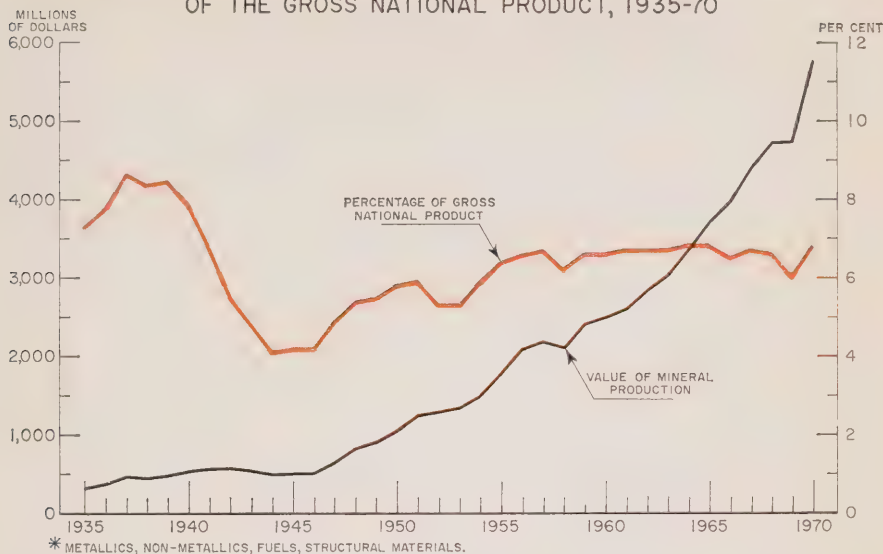
Canada produces nearly all the minerals needed for modern economies. Only a few items such as manganese, chromium, bauxite and tin are imported from lower-cost sources.

\* Prepared by D. S. Brearton and staff of the Mineral Resources Branch, Department of Energy, Mines and Resources, Ottawa.

† Because 1969 output was reduced through labour disputes, comparison of 1970 output with that of 1969 has little relevance. In much of this text 1970 is compared with 1968.



### VALUE OF MINERAL PRODUCTION\* AND ITS PERCENTAGE OF THE GROSS NATIONAL PRODUCT, 1935-70



Canada is the world's largest producer of asbestos, nickel, zinc and silver, is second in potash, molybdenum, gypsum, uranium and sulphur, and is among the leaders in production of titanium concentrates, platinum, aluminum, gold, copper and iron ore.

The great size of Canada's mineral industry is based largely upon export sales. Apparent domestic minerals consumption is equivalent to proportions of mineral output ranging from 6 p.c. for potash and nickel to about 20 p.c. for iron ore and about 43 p.c. for copper. The value of minerals and fabricated minerals exported in 1970 was 90 p.c. of mineral production value.

Exports of minerals and fabricated mineral products have led several great and sustained booms in the Canadian economy in the past and they have been a major factor in the surge in recent Canadian export trade. In 1970, these exports were valued at \$5,200,000,000 or 30.9 p.c. of the \$16,840,000,000 total of merchandise exports. This proportion is typical of the past decade or so, but it has been maintained despite the sudden and very large addition to Canada's automobile trade with the United States in the late 1960s. The level of mineral exports was greater in 1970 than in any earlier year despite weakening of United States demand. Shipments to the European Economic Community (EEC), Britain and Japan were significantly greater than formerly. Proportions shipped in 1970 to different markets (with dollar values in brackets) were: United States, 55 p.c. (\$2,860,000,000); Britain, 13.9 p.c. (\$720,000,000); Japan, 7.7 p.c. (\$400,000,000); and EEC, 10.8 p.c. (\$560,000,000). The proportion to the United States had been 60 p.c. in the previous two years; Britain's share was 13.3 p.c. in 1968, Japan's share 7.2 p.c. and the EEC's share 8.1 p.c. Japan's buying from Canada increased 25 p.c. over the two years 1968-70 and the EEC's 67 p.c.

In 1970, the classes of products contributing to total production of minerals and mineral products had the following shares (1968 shares in brackets) by value: fuels 29.8 p.c. (28.4 p.c.); metallics 54.0 p.c. (52.7 p.c.); non-metallics 8.6 p.c. (9.5 p.c.); and structural materials 7.6 p.c. (9.4 p.c.). The slight shift in significance of the classes reflects the relative stability

of the demand for domestic structural materials, the continued easing of prices in some non-metallics and the strong growth in exports of fuels and metallics. Contributions to 1970 value of minerals exports classified without aggregation of structural materials (which are minor items in exports) were fuels, fuel materials and products 18.6 p.c. (16.4 p.c. in 1968); metallic materials and products 70.8 p.c. (71.7 p.c. in 1968); and non-metallic materials and products 10.6 p.c. (11.9 p.c. in 1968).

1.—Value of Mineral Production, 1886-1970

Year	Total Value	Value per Capita	Year	Total Value	Value per Capita	Year	Total Value	Value per Capita
	\$	\$		\$	\$		\$	\$
1886.....	10,221,255	2.23	1935.....	312,344,457	28.84	1961.....	2,602,767,477	142.71
1890.....	16,763,353	3.51	1940.....	529,825,035	46.55	1962.....	2,840,299,299	152.84
1895.....	20,505,917	4.08	1945.....	498,755,181	41.31	1963.....	3,026,880,313	159.89
1900.....	64,420,877	12.15	1950 <sup>1</sup> .....	1,045,450,073	76.24	1964.....	3,364,929,279	174.44
1905.....	69,078,999	11.51	1955.....	1,795,310,796	114.37	1965.....	3,714,467,571	189.09
1910.....	106,823,623	15.20	1956.....	2,084,905,554	129.65	1966.....	3,980,304,565	198.87
1915.....	137,109,171	17.18	1957.....	2,190,322,392	131.87	1967.....	4,406,356,883	215.94
1920.....	227,859,665	26.63	1958.....	2,100,739,028	122.99	1968 <sup>r</sup> .....	4,721,668,791	227.62
1925.....	226,583,333	24.38	1959.....	2,409,020,511	137.79	1969.....	4,737,668,063	224.95
1930.....	279,873,578	27.42	1960.....	2,492,509,981	139.48	1970 <sup>p</sup> .....	5,768,721,200	269.86

<sup>1</sup> Value of Newfoundland production included from 1950.

Canada leads the world in mineral exports, and follows only the United States and the Soviet Union in production of minerals. This sector has always been most important in Canada's economic development and still is the main force in the northward advance of Canada's frontiers of population and economic activity.

Prices paid for minerals and metals presented a mixed picture in 1970. For copper and nickel, which bulk so large in Canada's exports, the prices paid were historically high but copper may have peaked out by the year-end. In the United States, copper brought 60 cents a pound early in the year but declined in the late months to 53 cents. In Canada, the course was 59 cents to 54 cents in the year.

Nickel prices in 1970 were stable in Canada but rose 5 cents in the United States to 133 cents, partially compensating Canadian producers for revaluation losses of revenue from export markets. Iron ore prices rose somewhat for both Lake Erie base-price deliveries and new long-term contracts. The good short-term prospect for the steel industry was reflected in higher prices for manganese, molybdenum, chromite, columbium, titanium and vanadium but tungsten prices fell. Aluminum in Canada was stable at 29.5 cents but rose 1 cent to 29 cents in the United States. Zinc, lead and silver prices declined significantly; zinc declined  $\frac{1}{2}$  cent to 15 cents in August, lead showed a slow decline from 16 $\frac{1}{2}$  cents to 14 $\frac{1}{2}$  cents, and silver prices dropped to \$1.609 by the year-end. Among non-metallics, asbestos was up 3 p.c. in January and then remained stable to the year-end. Sulphur and potash remained at low levels.

The great size of Canada's mineral industry rests upon a handful of minerals among the many produced. Petroleum (with natural gas), nickel, copper, iron ore and zinc together contribute three quarters of the total Canadian mineral output value and their significance calls for some discussion of their scale of operations, production locations, markets, new sources and prospects.



*Granisle mine on Babine Lake in northern British Columbia, one of that province's newer copper mines. The capacity of the concentrator, which was 6,500 tons of ore a day in 1971, is being expanded to 14,000 tons by late 1972. The copper concentrates are shipped to Japan for smelting.*

Petroleum, comprising crude oil and natural gas production and refining, is Canada's largest mineral industry. Domestic production and exports are small in the context of the world's industry but are of very great importance to Canada. This industry's growth in the past two decades has had important effects as a factor in the balance of payments, as a source of revenue to the several levels of government, and as a large component of engineering-construction activity.

In 1970, total petroleum (crude oil plus gas plus byproducts) production was valued at \$1,640,000,000, up 15.5 p.c. from \$1,420,000,000 in 1969. Crude oil production is concentrated in Alberta, with Saskatchewan a junior partner and only minor production elsewhere. The pattern of crude oil distribution in Canada reflects the National Oil Policy which is designed with several factors in mind: Canada's present producing fields are in mid-continent, and transport costs to eastern industry are quite significant, but the industry is not as low-cost a producer as is Venezuela or the Middle East. The Oil Policy therefore allocates markets west of the Ottawa Valley to Canada's mid-continent producers, and Quebec and Maritime markets are supplied by overseas oil. The mid-continent producers have an export market in mid-continent United States which in 1970 almost equalled in volume Canada's imports in the east. Thus, Canada produces oil almost equivalent to the total domestic needs but achieves in domestic markets the lowest-cost supply compatible with balance-of-payments aims. While the Alberta oilfields are producing much below capacity, the region's economic reserves of oil will last perhaps 20 years at current depletion rates. Canada's North is the focus of much optimism for large-scale oil finds, and exploration continues there.



Natural gas is an important domestic product and a valuable and growing export. Broadly speaking, gas is where oil is, that is, mainly in the western provinces and in Canada's Arctic. Natural gas production and sales are reported often in volume terms (thousands of standard cubic feet—Mcf.) but to compare, for example, oil and gas output, it is better to report equivalent thermal value, or values in dollars which do tend to reflect thermal values. In dollar terms, then, the gas and gas byproducts production of Canada in 1970 was \$510,000,000, compared with oil output of \$1,130,000,000; gas value was thus about 45 p.c. of oil value in the year, while in 1969, gas value was \$400,000,000 and oil value \$1,010,000,000 so that gas value was then close to 40 p.c. of oil. The upward shift of this ratio may continue; for both products, current scale and future growth depend significantly upon access to the United States market. In the case of gas, United States import policy seems focused on prices paid rather than on quantities imported, reflecting the special scarcity of gas reserves and supplies within that country.

Canadian reserves of gas are great. Western reserves are adequate for about 25 years at Canadian 1970 gross-production rate, and the economics of arctic transport are at present definitely more favourable for gas than for oil, so that the known Arctic gas reservoirs of giant size can perhaps be viewed with confidence as economically valid reserves. Production in Canada is increasing rapidly with growth of domestic and export markets. Domestic sales volume was 8 p.c. above 1969, and comprised 55 p.c. of the 1970 net domestic supply; exports, all to the United States, were 15 p.c. above 1969.

Concerning gas volumes data, the sources give, among other information, gross new production volume, net withdrawals volume, net domestic supply, and total demand. The first is new gas obtained from wells and in 1970 was 2,630,000 thousand standard cubic feet (Mcf.); the second was 2,280,000 Mcf. after waste, flaring and reinjection deductions; the third was 1,990,000 Mcf. after process shrinkage and storage-reservoir inventory adjustments and, because imports are now insignificant, this net domestic supply is effectively equivalent to total domestic supply and total domestic demand. Domestic sales plus exports fall short of total or net domestic supply by an amount that constitutes change in gas in process, change in pipeline inventory, etc. In 1970, the sum of domestic sales and exports was 1,700,000 Mcf., 12 p.c. above the 1969 amount. This marketable-production total of 1,700,000 Mcf. is much less than the 2,630,000 Mcf. gross production volume. Imports of gas in 1970 were insignificant—the pipeline systems from western to eastern provinces now have ample capacity following the major additions in recent years.

Nickel was in second place among Canadian minerals produced in 1970. Because Canada is the largest world producer, the labour troubles of 1969 in its nickel centres were a major influence on world nickel prices, which ended 1970 at a level one third higher than in 1968. This higher unit price, along with greater mine output, brought the value of nickel production in 1970 to \$830,000,000. Canada's output capacity for nickel should continue to increase; in the Sudbury basin two large mines opened during 1970, two others are being prepared there, and several others are firm producing prospects. In addition, larger output capacity is certain in Manitoba, and additions are possible in Quebec.

Copper was third by value of output among the minerals in 1970. Historically high price and increased production resulted in a record output value: tonnage produced amounted to 674,000, and capacity is expected to be 770,000 tons in 1971. World scarcity of copper seems to be ended for a while and official marketing controls were removed in Canada in September. Copper is produced in every province and territory except Prince Edward Island; Ontario dominates output, Quebec and British Columbia together equal Ontario and others are much less significant.

Iron ore production in 1970 was stimulated by demand from western Europe and by record domestic requirements which permitted peak production and shipments valued at \$590,000,000. Of the 38,700,000 long tons exported, the United States took 23,800,000 (26,700,000 tons in 1968), Britain took 4,900,000, western Europe 7,800,000 long tons and Japan 2,200,000, the latter being slightly more than West Germany and 1,000,000 less than the Netherlands. Canada's iron ore industry seems to have a strong future; immediate plans for expansion include new large-scale mines and new and enlarged processing facilities. Present Canadian capacity is 46,500,000 long tons mine output with 24,800,000 long tons pelletizing capacity. There are four producing provinces—Newfoundland (Labrador), Quebec, Ontario and British Columbia; Newfoundland (Labrador) dominates and British Columbia is minor.

Value of zinc production in 1970 was a record at \$385,920,000 but production (all forms) of zinc at 1,210,000 tons was only 10 p.c. above three-year-ago levels, reflecting the recent slowing of growth of markets. New mines are being prepared for production and Canada should continue as the world's largest producer of zinc.

The value of production of mineral fuels—coal, natural gas, natural gas byproducts and crude petroleum—rose to \$1,720,000,000 in 1970. A helpful change has occurred in the fortunes of the domestic coal industry; application of improved transport and mining techniques has revived the western coal industry and improved prices are giving a little help to eastern producers. Both output and revenues increased nationally but growth was wholly in the west. National output in 1970 was 16,000,000 tons (10,700,000 in 1969) with a value of \$80,500,000 (\$50,600,000 in 1969). Eastern output was only three quarters of the 1969 output; the west had a four fifths increase over 1969 production. Canada is a net importer of coal; 1970 exports were 4,100,000 tons but imports totalled 18,600,000 tons. Exports should reach more than 15,000,000 tons by 1972 under present contracts, mainly with Japanese iron-and-steel mills, and a balance in external trade in coal may be in sight.

## 2.—Value of Mineral Production, by Class, 1961-70

Year	Metallics	Non-metallics	Fuels	Structural Materials	Total
	\$	\$	\$	\$	\$
1961.....	1,387,159,036	210,467,786	673,794,892	331,345,763	2,602,767,477
1962.....	1,496,433,950	217,453,009	770,245,507	356,166,833	2,840,299,299
1963.....	1,509,536,931	253,452,413	884,879,853	379,011,116	3,026,880,313
1964.....	1,701,648,538	287,497,000	972,725,417	403,058,324	3,364,929,279
1965.....	1,907,575,899	327,238,901	1,045,490,867	434,161,904	3,714,467,571
1966.....	1,984,672,572	363,387,717	1,151,594,654	480,649,622	3,980,304,565
1967.....	2,285,279,477	406,269,252	1,260,147,793	454,660,361	4,406,356,883
1968.....	2,492,599,647	446,922,191	1,342,583,528	439,563,425	4,721,668,791
1969.....	2,378,714,025	450,188,745	1,465,923,630	442,841,663	4,737,668,063
1970.....	3,115,462,400	498,449,800	1,718,041,000	436,768,000	5,768,721,200

The volume of mineral production index, which measures the mining industry's absolute growth (1961=100), increased 15.9 p.c. in 1970 to 174.8 from 150.8 in 1969; the 1960-70 average annual rate of growth was 5.8 p.c. In comparison, the volume index of total industrial production increased 2.1 p.c. to 172.3 from 168.7 in 1969 and the average annual rate of growth in the period 1960-70 was 6.5 p.c.

**3.—Quantity Indexes of Production of the Principal Mining Industries, 1960-70**

(1961=100)

Mining Industry	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
<b>Metal Mines</b> .....	<b>107.3</b>	<b>100.0</b>	<b>102.2</b>	<b>104.1</b>	<b>120.2</b>	<b>122.8</b>	<b>121.1</b>	<b>129.3</b>	<b>135.9</b>	<b>122.1</b>	<b>147.4</b>
Placer gold and gold quartz	104.4	100.0	95.1	91.4	90.1	87.4	82.2	73.6	66.8	59.5	55.6
Iron.....	103.6	100.0	139.3	170.4	208.6	224.8	241.5	260.7	314.8	288.3	342.0
Miscellaneous.....	108.5	100.0	97.5	95.7	111.4	112.7	108.6	117.9	119.2	109.6	132.2
<b>Non-metal Mines (except coal)</b> .....	<b>91.5</b>	<b>100.0</b>	<b>108.7</b>	<b>121.4</b>	<b>139.2</b>	<b>151.5</b>	<b>164.2</b>	<b>173.6</b>	<b>189.7</b>	<b>203.2</b>	<b>206.4</b>
Asbestos.....	90.3	100.0	103.2	109.0	121.9	118.2	127.7	125.6	132.7	133.9	137.5
<b>Mineral Fuels</b> .....	<b>87.1</b>	<b>100.0</b>	<b>114.3</b>	<b>123.0</b>	<b>133.0</b>	<b>142.0</b>	<b>152.4</b>	<b>166.1</b>	<b>181.5</b>	<b>198.8</b>	<b>234.7</b>
Coal.....	107.0	100.0	97.9	104.5	109.8	111.9	103.7	103.1	102.6	99.1	153.9
Crude petroleum and natural gas.....	85.7	100.0	117.3	126.3	137.2	147.4	161.2	177.5	195.7	216.8	249.3
<b>Totals, Mines (incl. Milling), Quarries and Oil Wells</b> .....	<b>97.4</b>	<b>100.0</b>	<b>106.2</b>	<b>112.1</b>	<b>126.0</b>	<b>131.9</b>	<b>134.2</b>	<b>142.1</b>	<b>152.4</b>	<b>150.8</b>	<b>174.8</b>

Investment in new installations, equipment and machinery in Canadian mines, quarries and oil wells (including pipelines) was \$1,230,000,000 in 1970 compared with \$1,180,000,000 in 1969 and \$1,070,000,000 in 1968. The forecast for 1971 was \$1,560,000,000. Although new capital investment can fluctuate greatly from year to year, repair expenditures—a further \$43,000,000 on the 1970 new-capital value—usually rise fairly steadily over time.

The aggregate investment boom for the mining sector in the years since 1965 and the expected 1971 acceleration conceal declines of new investment in some activities and differences in experience in different regions of Canada. In metal-mining, the new-capital investment was below \$200,000,000 a year until 1965 but exceeded \$400,000,000 in 1970. Iron mines investment was relatively limited in 1969 and 1970 but other metal-mining investment, particularly for nickel and copper, was very high. New capital investment in non-metal mining (excluding oil and gas) was less than \$100,000,000 a year up to 1965 but an investment boom in asbestos, potash and coal brought the annual spending up to \$240,000,000 in both 1968 and 1969. Reported 1970 and forecast 1971 spending was in the \$170,000,000 range.

New capital investment in the petroleum and gas industry (mineral fuels excluding coal) climbed fairly steadily from the \$200,000,000-to-\$300,000,000-a-year rate of the early 1960s to \$542,000,000 in 1969 and \$620,000,000 in 1970; the 1971 forecast was \$700,000,000. Within this aggregate there was a shift in emphasis; recently, the spending on exploration and on development items has been stagnant but additions to feed and distribution systems for oil have been substantial. Gas production and processing investment was heavy in 1969 and in 1970.

The minerals (not oil or gas) investment in individual provinces reflects the regional concentration of mineral resources and, strongly, the medium-term market prospects of the resources. In the Maritime Provinces, absolute values of investment are small and spending patterns are not sharply clear and in Newfoundland (Labrador) iron mine investment is again heavy after a lull. In Quebec, investment is at moderate levels, with asbestos and iron ore expansions; through the 1960s, Quebec mining investment was hesitant but iron ore mining and processing spending promises to be large in the immediate future. In Ontario, the investment boom that began in 1965 is still accelerating; iron ore, copper-zinc and nickel-copper spending booms have succeeded one another. In the Prairie Provinces, investment has passed through sharply defined phases in the recent past, and at present is depressed. In sharp contrast is British Columbia where the value of mining construction (surface and underground) in 1970 comprised one third of the national total. Coal, particularly, and metals and asbestos expansions account for the fact that British Columbia mining construction has exceeded even that of Ontario in 1968, 1969 and 1970.



## 4.—Quantity and Value of Mineral Production, 1969 and 1970

Mineral	1969		1970 <sup>p</sup>	
	Quantity	Value	Quantity	Value
		\$		\$
<b>Metallics</b>		<b>2,378,714,025</b>		<b>3,115,462,400</b>
Antimony..... lb.	820,122	508,476	716,000	1,131,300
Bismuth..... "	579,059	2,530,564	571,000	3,252,600
Cadmium..... "	5,213,054	18,349,949	4,246,200	16,058,900
Calcium..... "	942,682	953,522	400,000	338,000
Cobalt..... "	3,255,623	6,851,046	5,228,900	11,893,000
Columbium (Cb <sub>2</sub> O <sub>5</sub> )..... "	3,414,495	3,172,845	4,919,000	5,303,600
Copper..... "	1,146,491,300	588,280,597	1,347,494,680	782,490,300
Gold..... oz.t.	2,545,109	95,925,158	2,357,620	86,218,120
Indium..... "	...	...	...	...
Iron ore..... ton	40,054,274	454,075,618	53,209,800	589,126,000
Iron, remelt..... "	...	26,643,290	...	29,975,300
Lead..... lb.	637,263,478	96,672,869	766,415,400	121,246,900
Magnesium..... "	21,274,841	7,263,849	19,167,000	6,478,400
Mercury..... "	...	...	...	...
Molybdenum..... lb.	29,651,261	53,387,585	35,353,500	62,625,000
Nickel..... "	427,223,131	481,055,140	616,080,800	829,643,800
Platinum group..... oz.t.	310,404	30,881,016	461,200	42,696,500
Selenium..... lb.	795,865	4,552,347	604,300	5,160,600
Silver..... oz.t.	43,530,941	84,014,909	44,282,680	81,922,980
Tantalum (Ta <sub>2</sub> O <sub>5</sub> )..... lb.	130,298	937,744	315,000	2,200,000
Tellurium..... "	72,410	467,769	58,900	356,400
Thorium..... "	29,014	55,087	...	...
Tin..... "	288,427	470,136	281,000	531,100
Tungsten (WO <sub>3</sub> )..... "	...	...	...	...
Uranium (U <sub>3</sub> O <sub>8</sub> )..... lb.	7,707,735	53,150,657	8,021,000	50,237,000
Yttrium (Y <sub>2</sub> O <sub>3</sub> )..... "	85,443	671,500	73,000	657,000
Zinc..... "	2,415,248,550	367,842,352	2,422,597,200	385,919,600
<b>Non-metallics</b>		<b>450,188,745</b>		<b>493,449,800</b>
Arsenic oxide..... lb.	339,875	34,000	200,000	20,000
Asbestos..... ton	1,611,168	195,211,101	1,654,000	215,270,000
Barite..... "	143,230	1,379,752	236,000	2,140,000
Diatomite..... "	...	...	...	...
Feldspar..... ton	12,385	301,375	11,000	311,000
Fluorspar..... "	...	3,036,931	...	4,185,000
Gemstones..... lb.	28,332	44,635	28,000	45,000
Gypsum..... ton	6,373,648	14,995,150	6,442,000	14,956,000
Helium..... "	...	...	...	...
Magnesitic dolomite and brucite..... "	...	3,209,170	...	3,600,000
Nepheline syenite..... ton	500,571	5,935,239	491,000	6,147,000
Nitrogen..... "	...	...	...	...
Peat moss..... ton	330,174	9,562,123	317,000	9,410,000
Potash (K <sub>2</sub> O)..... "	3,492,001	69,382,516	3,424,000	116,402,000
Pyrite, pyrrhotite..... "	376,159	2,219,362	325,700	1,849,000
Quartz..... "	2,300,374	6,279,792	2,902,000	8,610,000
Salt..... "	4,657,765	30,406,109	5,052,000	34,248,000
Soapstone, talc, pyrophyllite..... "	75,850	1,097,568	75,000	1,183,000
Sodium sulphate..... "	518,299	8,051,627	478,000	7,611,000
Sulphur, in smelter gas..... "	676,189	7,953,011	708,800	7,282,000
Sulphur, elemental..... "	2,973,506	60,725,726	3,779,850	30,710,800
Titanium dioxide, etc..... "	...	30,363,558	...	34,470,000
<b>Fuels</b>		<b>1,465,923,630</b>		<b>1,718,041,000</b>
Coal..... ton	10,671,879	50,578,283	16,047,000	80,506,000
Natural gas..... Mcf.	1,977,838,205	262,855,588	2,295,278,000	350,953,000
Natural gas byproducts..... bbl.	66,724,769	137,919,025	77,595,000	159,583,000
Petroleum, crude..... "	410,989,930	1,014,570,734	455,382,000	1,126,999,000
<b>Structural Materials</b>		<b>442,841,663</b>		<b>436,768,000</b>
Clay products..... "	...	51,165,915	...	44,059,000
Cement..... ton	8,250,032	162,091,044	8,065,000	160,440,000
Lime..... "	1,634,862	19,239,296	1,626,000	19,019,000
Sand and gravel..... "	201,581,498	122,159,146	194,100,000	117,400,000
Stone..... "	67,477,012	88,186,262	70,700,000	95,850,000
<b>Grand Totals</b>	<b>...</b>	<b>4,737,668,063</b>	<b>...</b>	<b>5,768,721,200</b>

## 5.—Percentage of the Total Value Contributed by Principal Minerals, 1961-70

Mineral	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970 <sup>a</sup>
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
<b>Metallics<sup>1</sup></b>	<b>53.7</b>	<b>52.5</b>	<b>49.5</b>	<b>50.2</b>	<b>50.9</b>	<b>50.0</b>	<b>51.9</b>	<b>52.7</b>	<b>50.2</b>	<b>54.0</b>
Copper.....	9.9	9.9	9.3	9.6	10.2	11.4	13.2	12.9	12.4	13.6
Gold.....	6.1	5.5	5.0	4.3	3.6	3.2	2.6	2.2	2.0	1.5
Iron ore.....	7.3	9.2	10.3	11.9	11.0	10.9	10.7	11.3	9.6	10.2
Lead.....	1.8	1.5	1.5	1.6	2.4	2.3	2.0	1.9	2.0	2.1
Molybdenum.....	0.4	0.4	0.4	0.6	0.5	0.9	0.9	0.8	1.1	1.1
Nickel.....	13.6	13.5	11.8	11.2	11.5	9.5	10.5	11.2	10.2	14.4
Platinum group.....	0.9	1.0	0.7	0.7	1.0	0.8	0.8	1.0	0.7	0.7
Silver.....	1.1	1.2	1.4	1.2	1.2	1.2	1.4	2.2	1.8	1.4
Uranium.....	7.6	5.5	4.5	2.5	1.7	1.4	1.2	1.1	1.1	0.9
Zinc.....	4.1	3.9	4.0	5.7	6.6	7.3	7.3	6.9	7.8	6.7
<b>Non-metallics<sup>1</sup></b>	<b>8.2</b>	<b>7.6</b>	<b>8.3</b>	<b>8.4</b>	<b>8.7</b>	<b>9.1</b>	<b>9.2</b>	<b>9.5</b>	<b>9.5</b>	<b>8.6</b>
Asbestos.....	5.0	4.6	4.5	4.3	3.9	4.1	3.8	3.9	4.1	3.7
Gypsum.....	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Nepheline syenite.....	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Potash.....	—	0.1	0.7	0.9	1.5	1.6	1.5	1.4	1.5	2.0
Quartz.....	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Salt.....	0.8	0.8	0.7	0.6	0.6	0.6	0.6	0.7	0.6	0.6
Sodium sulphate.....	0.2	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.2	0.1
Sulphur, in smelter gas.....	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1
Sulphur, elemental.....	0.3	0.3	0.4	0.6	0.7	1.0	1.6	1.7	1.3	0.5
Titanium dioxide, etc.....	0.6	0.4	0.5	0.6	0.6	0.5	0.5	0.6	0.6	0.6
<b>Fuels<sup>1</sup></b>	<b>25.3</b>	<b>27.4</b>	<b>29.8</b>	<b>29.5</b>	<b>28.8</b>	<b>29.0</b>	<b>28.7</b>	<b>28.4</b>	<b>30.9</b>	<b>29.8</b>
Coal.....	2.7	2.4	2.4	2.1	2.0	2.1	1.9	1.1	1.1	1.4
Natural gas.....	2.6	3.8	4.9	5.1	5.0	4.5	4.5	4.8	5.5	6.1
Petroleum.....	18.9	19.4	20.2	19.9	19.3	19.9	19.7	19.8	21.4	19.5
<b>Structural Materials</b>	<b>12.8</b>	<b>12.5</b>	<b>12.4</b>	<b>11.9</b>	<b>11.6</b>	<b>11.9</b>	<b>10.2</b>	<b>9.4</b>	<b>9.4</b>	<b>7.6</b>
Clay products.....	1.4	1.3	1.3	1.2	1.2	1.1	1.0	1.0	1.1	0.8
Cement.....	4.0	4.0	3.9	3.9	3.8	3.9	3.3	3.2	3.4	2.8
Lime.....	0.7	0.6	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.3
Sand and gravel.....	4.1	4.2	4.0	3.7	3.6	3.8	3.2	2.8	2.6	2.0
Stone.....	2.6	2.4	2.6	2.5	2.5	2.6	2.3	2.0	1.9	1.7
<b>Grand Totals</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

<sup>a</sup> Includes minor items not specified.

## Provincial and Territorial Mineral Production in 1970

The national output value of minerals is dominated by Ontario and Alberta. The great importance of nickel and of oil gave these producers about 52 p.c. of the total value of minerals output in both 1968 and 1970; Ontario produced 28.3 p.c. of the total in 1970 as against 28.7 p.c. in 1968. The contribution of Quebec in 1970 was 13.8 p.c. and of British Columbia 8.6 p.c.; Saskatchewan, Newfoundland and Labrador, and Manitoba were in the 7-to-5-p.c. range and the contribution of each of the three Maritime Provinces and the two Territories was less than 4 p.c. In 1970, Alberta produced 77 p.c. of the national fuels value, Ontario 45 p.c. of the national metallics value, and Quebec 43 p.c. of the national non-metallics value.

**Newfoundland (including Labrador).**—Mineral production value in Newfoundland (including Labrador) in 1970 was \$358,000,000 compared with a 1968 value of \$310,000,000, an increase of 15.5 p.c. In 1970, iron ore output reached 24,900,000 tons compared with 19,700,000 tons two years earlier; copper output was 15,400 tons, down from 23,300 tons partly because one mine closed in 1969 leaving four mines in operation; asbestos output was 66,000 tons against 69,000 tons; and the value of fluorspar production increased to \$4,200,000 from \$2,600,000.

**Prince Edward Island.**—Mineral output in this province is confined to structural materials, mainly sand and gravel, which in 1970 was valued at about \$500,000.

**Nova Scotia.**—Total mineral production value in 1970 in Nova Scotia was \$59,000,000, a level similar to those of 1969 and 1968 but below the levels of the mid-1960s. Coal output declined further in 1970 to 2,100,000 tons from 3,100,000 tons in 1968; although one new coal

mine was being prepared for operation at Lingan, the decline in this industry has been fairly rapid and would be more rapid without government intervention. Non-metallic mineral output, apart from coal, was valued at \$19,300,000, a substantial increase over the 1969 value of \$15,400,000. Output of metallics—lead and silver—fell off sharply from 1968 levels.

**New Brunswick.**—Mineral production value in New Brunswick in 1970 amounted to \$101,000,000 compared with \$94,000,000 in 1969 and \$88,000,000 in 1968. Close to 90 p.c. of this production was of metallic ores and products, the strength of which more than compensated for the continued decline in coal output. The major metals produced are zinc and lead which comprise one half and one fifth, respectively, of New Brunswick mineral output values. Output of both of these metals rose rapidly over the 1968-70 period, revenues for each having increased by one third. Production of zinc, lead, copper and silver is centred around Bathurst.

**Quebec.**—Total mineral output value in Quebec was \$800,000,000 in 1970, a fairly good increase over 1968 and 1969 but only slightly higher than 1966. More than one half of the annual product consists of metallics, non-metallics contributing one quarter and structural materials one eighth of the product. Fuels production in this province is insignificant.

The metallics produced in Quebec are mainly copper and iron ore and the non-metallic output is almost wholly asbestos. Copper, valued at \$201,000,000 in 1970, accounted for one quarter of all Quebec mineral output; iron ore, at \$131,000,000, contributed one sixth. Copper capacity and production increased in the 1968-70 period but iron ore capacity remained stable, as did production (allowing for strikes). Zinc production, at \$63,000,000 in 1970, is also a significant contributor to the mineral output of Quebec but tonnage has declined somewhat from 1968. Asbestos production has been fairly stable in output volume since 1968 but price increases brought revenues up to \$165,000,000 in 1970 and significant expansions were made in mine and mill facilities during the year. Titanium dioxide, produced only in Quebec, is a valuable product with firm world markets; production value increased from \$28,000,000 in 1968 to \$34,000,000 in 1970.

**Ontario.**—Ontario has a mineral production value of more than \$1,600,000,000 annually. Metallics are the great strength of this output and the class showing the greatest recent growth rate; the value of the output of metallics in 1970 was almost 24 p.c. higher than that in 1968. Nickel is the most important of the metallics, contributing 44 p.c. of the province's metallic minerals output value in 1970; copper followed with 24 p.c., iron ore with 10 p.c. and precious metals with 8.5 p.c. The range of output is extremely diverse, more so than in any other province of Canada and the value of metallics production, not including nickel and copper, is almost as great as Quebec's total minerals output value.

Output of fuels in Ontario is very small and the non-metallics produced consist mainly of salt, nepheline syenite, asbestos, sulphur and quartz in small quantities. Structural materials produced in 1970 were valued at \$189,000,000, an amount little changed since 1967 because of hesitancy in the construction industry.

**Manitoba.**—Manitoba's mineral production in 1970 was valued at \$333,000,000, an amount 59 p.c. above the 1968 total. Of the 1970 value, metallic minerals comprised 88 p.c., structural materials 6 p.c., and fuels 5 p.c. Of the total metallics value amounting to \$294,000,000, nickel contributed 72 p.c. and copper 20 p.c.

The rapid rise of mining output in Manitoba is attributable mainly to the recently increased capacity at the nickel-copper mines of Inco at Thompson. Sherritt Gordon at Lynn Lake and Dumbarton Mines at Bird River also produced more in 1970 than in 1968. Manitoba nickel (all forms) production rose by one third in two years—from 58,000 tons in 1968 to 78,000 tons in 1970, the latter being one quarter of the total Canadian nickel output. Zinc produced in Manitoba was valued at \$12,500,000 in 1970; because of labour disputes, both value and tonnage were lower than in 1968 or 1969.



**Saskatchewan.**—Saskatchewan's mineral production, of course, reflects the determines of geography. In contrast to the more easterly provinces, the Canadian Shield formation comprises much less than one half of Saskatchewan's area, nor does Saskatchewan have the Cordillera and related resources that are present in the more westerly provinces. Saskatchewan, therefore, is mainly a non-metallic minerals producer, its major products being oil, natural gas and potash; zinc, copper and uranium are of useful but minor annual output value. Oil output is stable although hesitant, and uranium output continues to decline, but the restoration of order in potash markets through regulation of supply in both Saskatchewan and New Mexico has raised revenues substantially for that product.

The value of total mineral output in Saskatchewan in 1970 was \$393,000,000, a \$50,000,000 increase over 1969 attributable to price increases in potash. The broad picture in the province for the past few years has been one of stable annual value of output. Of the total 1970 output, the fuels class contributed 56 p.c., non-metallics (almost all potash) 32 p.c., and metallics about 10 p.c.

**Alberta.**—Alberta is Canada's major oil producer. Its dominance in Canadian oil production has become steadily firmer, its share of the national output climbing from 69 p.c. in 1967 to 73 p.c. in 1970. Even so, production in the province could be much greater than at present since the developed fields are operating below capacity. Assuming adequate feed and transmission pipe, the barrier to increased output is the regulation by the United States of imports into its mid-continent States. Proven economic reserves of oil are not great: at present production rates, they total about 20 years' supply. Current exploration in Alberta is at a moderate level—significant improvement in new field exploration seems to await the outcome of the economic and environmental studies on the new sources of oil above the Arctic Circle.

Alberta's total minerals output in 1970 was valued at \$1,390,000,000, of which \$1,320,000,000 was fuels; half of the remainder was fuel-byproduct sulphur and half was structural materials—mainly cement, sand and gravel—valued at \$37,000,000. Crude petroleum production amounted to 331,000,000 bbl., higher by 14 p.c. than in 1969; unit prices changed little from the two preceding years. Natural gas net new production in Alberta in 1970 was 1,892,000,000 Mcf. compared with 1,606,000,000 Mcf. a year earlier, reflecting continuing strong demand for gas in mid-continental United States.

Alberta's southwest is producing useful amounts of coal, the value of the 1970 output being \$25,700,000 compared with about \$12,000,000 in both 1967 and 1968. Current production should increase a little but coal output may be at a plateau for a few years.

**British Columbia.**—Total minerals output value in British Columbia in 1970 was almost \$500,000,000 compared with \$434,000,000 in 1969 and \$389,000,000 in 1968; the average annual growth in the 1968-70 period was 13 p.c. This production includes a very wide range of products: 60 p.c. is provided by metallics, 25 p.c. by fuels, 10 p.c. by structural materials and 5 p.c. by other non-metallics. Copper is especially significant, comprising one fourth of all minerals-output value. Other valuable metallics are, in order of importance, molybdenum, zinc, lead, iron ore and silver. Even a little tin is produced, as concentrate, when world prices are high. Asbestos and sulphur are among the non-metallic minerals produced and there are also considerable amounts of crude oil, natural gas and coal produced.

Copper production has climbed rapidly; the 110,000-ton output in 1970 was a one-third increase over 1968 and 1969 levels and price increases brought 1970 copper revenues up by almost one half over those for 1968. Molybdenum production volume in 1970 increased by one half over the 1968 output levels to 16,000 tons (contained molybdenum basis) of concentrate but price increases were not large. The coal mines developed over the past few years achieved a sudden increase in output value to \$22,000,000 in 1970 from \$7,000,000 in 1969. British Columbia coal is almost all high-unit-price bituminous coal of coking quality. The enlarged production in 1970 and the foreseen future expansion is for Japanese requirements.

## MINERAL REFERENCES

Locations of mines and mining areas mentioned in  
the Mines and Minerals Chapter of this volume

Department of Energy, Mines and Resources, Map 90-1A  
annually, shows names and locations of all producing  
mines and the principal oil and gas fields in Canada.



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66. Estevan—coal mines
67. Belle Plaine—salt mine
68. Uranium City—uranium mine
69. Drake Point—natural gas discovery
70. Yellowknife—gold mine
71. Pine Point—lead-zinc mines
72. McMurray—oil sands (petroleum)
73. Fort Saskatchewan—nickel refinery
74. Wabamun—coal
75. Strahan-Ricinus Area—petroleum and natural gas exploratory drilling
76. Coleman—coal
77. Crowsnest Pass Area—coal
78. Fording—coal
79. Kimberley—lead-zinc mine
80. Cardinal River—coal
81. Golden—lead-zinc-silver mine
82. Bluebell Mine—lead-zinc
83. McIntyre—coal
84. Revelstoke—molybdenum mine
85. Ferguson—lead-zinc-silver mine
86. Slocan—lead-zinc-silver
87. Reeves-MacDonald Mine—zinc-lead
88. Trail—refinery
89. Rossland—molybdenum mine
90. Greenwood—copper mine
91. Brenda Mine—copper-molybdenum
92. Boss Mountain—molybdenum mine
93. Highland Valley Area—copper mines
94. Williams Lake—copper-molybdenum mine
95. Ashcroft—copper-molybdenum mine
96. Giant Mascot Mine—nickel
97. Churchill Copper—mine
98. Endako—molybdenum mine
99. Britannia Mine—copper
100. Texada Mine—iron-copper
101. Buttle Lake—zinc-copper mine
102. Port Hardy—copper-molybdenum mine
103. 10E Atkinson H25—petroleum discovery
104. Anvil Mine—zinc-lead
105. Cassiar—asbestos mine
106. Granduc—copper
107. Alice Arm Area—molybdenum mine
108. Carmacks—coal mine
109. Whitehorse Area—copper and gold mines
110. Arctic Gold and Silver—mine (gold-silver)
111. Wesfrob Mine—iron
112. Clinton Creek—asbestos mine



The rapid growth of mine and mill operations in the province gives great importance to announced provincial policy on the smelting of ores. The British Columbia Government intends that producers process within the province a significant proportion of their mineral output.

**Yukon Territory and Northwest Territories.**—Yukon minerals production comprises metallics—mainly zinc, lead, copper and precious metals—and asbestos. Output is not large by national standards but it is increasing rapidly. In 1970, the \$80,000,000 total output included zinc, \$25,000,000; lead, \$22,000,000; copper, \$9,000,000, silver, \$8,000,000; and asbestos, \$15,000,000.

Northwest Territories mineral output, valued at \$125,000,000 in 1970, is almost wholly metallic minerals plus a little petroleum and natural gas. Output value was fairly steady in the 1968-70 period; moderate increases in the volume output of zinc and lead, which comprised 86 p.c. of the 1970 total value, were counteracted by declining prices leaving revenues unchanged.

A zinc-lead discovery with a large tonnage potential has been made on Little Cornwallis Island in the Northwest Territories. This treeless terrain, which has little vegetation and no permanent ice or snow cover, can be traversed readily by vehicles with outsized tires, and light aircraft so equipped can land almost anywhere.



Two geologists examine a chunk of massive zinc-lead mineralization.



**6.—Value of Mineral Production, by Province, 1961-70**

Year	Newfoundland (incl. Labrador)	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba
	\$	\$	\$	\$	\$	\$	\$
1961.....	91,618,709	606,644	61,693,156	18,801,981	455,522,933	943,669,488	101,489,840
1962.....	101,858,960	677,906	61,651,093	21,811,575	519,453,166	913,342,141	158,932,169
1963.....	137,796,707	798,345	66,317,617	28,343,433	540,615,068	874,208,868	169,626,688
1964.....	182,152,656	831,283	66,073,596	48,676,712	684,583,430	904,077,030	173,872,576
1965.....	207,557,627	599,387	70,771,827	82,164,344	715,900,973	993,730,961	182,143,774
1966.....	244,020,086	1,062,513	85,416,974	90,207,633	771,179,636	957,851,890	179,342,104
1967.....	266,365,149	1,775,001	77,226,142	90,440,172	741,435,723	1,194,548,906	184,678,564
1968 <sup>c</sup> .....	309,711,994	976,742	56,939,905	88,452,486	725,077,850	1,355,628,670	209,625,533
1969.....	256,935,937	451,500	58,631,575	94,592,565	718,366,119	1,223,380,337	246,340,849
1970 <sup>p</sup> .....	358,350,100	500,000	58,557,990	101,192,420	798,565,390	1,631,978,500	333,261,820
	Saskatchewan	Alberta	British Columbia	Yukon Territory	Northwest Territories	Canada	
	\$	\$	\$	\$	\$	\$	
1961.....	215,210,168	495,548,442	187,713,736	12,750,304	18,142,076	2,602,767,477	
1962.....	241,889,176	555,480,984	234,493,431	13,137,730	17,570,968	2,840,299,299	
1963.....	274,171,427	644,387,580	260,356,615	14,366,936	15,891,029	3,026,880,313	
1964.....	293,245,302	709,407,372	268,723,824	15,204,103	18,081,395	3,364,929,279	
1965.....	328,753,797	761,831,887	280,156,051	13,400,535	77,456,418	3,714,467,571	
1966.....	348,493,608	848,616,941	330,898,073	11,975,757	111,239,350	3,980,304,565	
1967.....	361,824,119	974,301,975	380,487,993	14,990,529	118,282,610	4,406,356,885	
1968 <sup>c</sup> .....	357,173,719	1,091,766,867	389,313,454	21,365,555	115,636,016	4,721,668,791	
1969.....	344,815,077	1,205,308,015	434,272,656	35,402,563	119,170,870	4,737,668,063	
1970 <sup>p</sup> .....	392,507,660	1,393,503,480	495,582,430	79,642,350	125,079,060	5,768,721,200	

**7.—Value of Metallics, Non-metallics, Fuels and Structural Materials Produced, by Province, 1969 and 1970**

Year and Province or Territory	Metallics	Non-metallics	Fuels	Structural Materials	Totals
	\$	\$	\$	\$	\$
<b>1969</b>					
Newfoundland (incl. Labrador) ..	235,096,050	15,742,263	—	6,097,624	256,935,937
Prince Edward Island.....	—	—	—	451,500	451,500
Nova Scotia.....	1,406,325	18,228,936	21,780,974	17,215,340	58,631,575
New Brunswick.....	77,562,887	3,603,831	5,757,473	7,668,374	94,592,565
Quebec.....	415,922,166	197,982,963	20,684	104,440,316	718,366,119
Ontario.....	1,001,021,179	35,671,512	7,392,183	179,295,463	1,223,380,337
Manitoba.....	206,425,862	3,136,113	15,614,716	21,164,158	246,340,849
Saskatchewan.....	44,180,245	80,031,020	209,839,597	10,764,215	344,815,077
Alberta.....	5,035	62,069,192	1,104,034,945	59,198,843	1,205,308,015
British Columbia.....	255,430,729	21,798,389	100,497,708	56,545,830	434,272,656
Yukon Territory.....	23,478,037	11,924,526	—	—	35,402,563
Northwest Territories.....	118,185,520	—	985,350	—	119,170,870
<b>Canada, 1969.....</b>	<b>2,378,714,025</b>	<b>450,188,745</b>	<b>1,465,923,630</b>	<b>442,841,663</b>	<b>4,737,668,063</b>
<b>1970<sup>p</sup></b>					
Newfoundland (incl. Labrador) ..	333,082,100	18,798,000	—	6,470,000	358,350,100
Prince Edward Island.....	—	—	—	500,000	500,000
Nova Scotia.....	574,990	19,327,000	21,866,000	16,790,000	58,557,990
New Brunswick.....	88,162,420	2,467,000	3,063,000	7,500,000	101,192,420
Quebec.....	479,772,390	214,952,000	25,000	103,816,000	798,565,390
Ontario.....	1,392,104,300	41,061,200	9,547,000	189,266,000	1,631,978,500
Manitoba.....	293,692,820	2,232,000	16,307,000	21,030,000	333,261,820
Saskatchewan.....	37,169,160	126,831,500	219,614,000	8,893,000	392,507,660
Alberta.....	2,580	32,794,900	1,324,168,000	36,538,000	1,393,503,480
British Columbia.....	302,428,230	24,813,200	122,376,900	45,965,000	495,582,430
Yukon Territory.....	64,469,350	15,173,000	—	—	79,642,350
Northwest Territories.....	124,004,060	—	1,075,000	—	125,079,060
<b>Canada, 1970.....</b>	<b>3,115,462,400</b>	<b>498,449,800</b>	<b>1,718,041,000</b>	<b>436,768,000</b>	<b>5,768,721,200</b>

8.—Detailed Mineral Production, by Province, 1970 with Totals for 1969

Mineral	Newfoundland (incl. Labrador)	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Yukon Territory	North-west Territories	Canada	
												1970 <sup>a</sup>	1989
<b>Metallics..... \$</b>	<b>333,052,100</b>	<b>574,990</b>	<b>88,162,420</b>	<b>479,772,390</b>	<b>1,392,104,300</b>	<b>293,692,820</b>	<b>37,169,160</b>	<b>2,580</b>	<b>302,428,230</b>	<b>64,469,350</b>	<b>124,004,060</b>	<b>3,115,462,400</b>	<b>2,378,714,025</b>
Antimony..... lb.	—	—	—	—	—	—	—	—	716,000	—	—	716,000	820,122
Bismuth..... lb.	—	—	38,800	384,000	—	—	—	—	1,131,300	—	—	1,131,300	508,476
Cadmium..... lb.	—	—	243,300	2,080,000	66,500	—	—	—	137,600	—	—	1,571,000	579,059
Cadmium..... lb.	—	—	170,800	2,775,500	2,321,000	184,500	91,400	—	862,800	—	—	3,252,600	2,580,564
Calcium..... lb.	—	—	642,200	1,078,000	8,778,000	693,700	343,700	—	1,000,000	63,000	140,000	4,246,200	5,213,054
Calcium..... lb.	—	—	—	—	400,000	—	—	—	3,760,000	236,900	526,400	16,058,900	18,349,949
Cobalt..... lb.	—	—	—	—	338,000	—	—	—	—	—	—	338,000	942,682
Cobalt..... lb.	—	—	—	—	4,387,000	841,900	—	—	—	—	—	3,255,623	963,522
Cobalt..... lb.	—	—	—	—	9,910,000	1,983,000	—	—	—	—	—	11,893,000	3,255,623
Columbium lb.	—	—	—	4,919,000	—	—	—	—	—	—	—	4,919,000	6,851,046
Columbium lb.	—	—	—	5,303,600	—	—	—	—	—	—	—	5,303,600	3,414,495
Copper..... lb.	30,822,400	54,000	15,865,480	347,000,000	583,817,500	102,891,000	31,097,000	—	219,293,500	15,500,000	1,086,800	1,347,494,680	3,172,845
Copper..... lb.	17,895,600	31,400	9,213,100	201,542,000	339,022,800	59,748,800	18,058,000	—	127,343,700	9,000,800	631,100	782,490,300	1,146,491,300
Gold..... oz. \$	7,300	4,920	684,800	1,143,320	1,143,320	45,200	32,250	70	99,200	20,400	319,560	2,357,620	2,545,109
Indium..... oz. \$	266,960	179,920	25,043,140	41,833,150	1,652,960	—	1,179,380	2,560	3,627,740	746,000	11,686,310	86,218,120	95,925,168
Iron ore..... ton	24,885,300	—	—	14,648,800	11,752,100	—	—	—	1,923,600	—	—	53,209,800	40,054,274
Iron, remelt ton	296,734,000	—	—	131,319,000	144,279,000	—	—	—	16,794,000	—	—	589,126,000	454,075,618
Lead..... lb.	40,429,000	2,598,000	124,266,000	4,217,000	20,519,500	1,081,600	—	—	215,835,300	137,475,000	220,000,000	29,975,300	26,643,290
Magnesium..... lb.	6,395,900	—	19,658,000	667,100	3,246,200	171,100	—	—	34,145,100	21,748,500	34,804,000	766,415,400	637,263,478
Mercury..... lb.	—	—	—	—	19,167,000	—	—	—	—	—	—	19,167,000	96,672,869
Mercury..... lb.	—	—	—	—	6,478,400	—	—	—	—	—	—	6,478,400	21,274,841
Molybdenum lb.	—	—	—	—	—	—	—	—	—	—	—	—	7,263,849
Nickel..... lb.	—	—	—	2,493,000	—	—	—	—	32,860,500	—	—	35,353,500	29,651,261
Nickel..... lb.	—	—	—	4,553,000	—	—	—	—	58,072,000	—	—	62,625,500	53,387,585
Platinum group	—	—	—	1,658,000	455,975,400	156,147,400	—	—	2,300,000	—	—	616,080,800	427,223,131
Selenium..... lb.	—	—	—	2,288,000	611,532,800	212,649,000	—	—	3,174,000	—	—	829,643,800	481,055,140
Selenium..... lb.	—	—	—	—	461,200	—	—	—	—	—	—	461,200	310,404
Selenium..... lb.	—	—	—	338,800	130,500	81,000	—	—	—	—	—	42,696,500	30,881,016
Selenium..... lb.	—	—	—	2,880,000	1,119,600	696,600	54,000	—	—	—	—	604,300	795,865
Silver..... oz. t.	838,560	71,670	4,523,840	5,259,000	19,355,700	682,300	435,500	10	6,326,100	4,265,000	2,625,000	5,160,600	4,552,347
Tantalum (Ta <sub>2</sub> O <sub>5</sub> ) lb.	1,551,240	132,590	8,399,100	9,729,150	35,808,050	1,262,260	805,680	20	11,703,290	7,800,250	4,671,250	81,922,980	43,530,941
Tellurium..... lb.	—	—	—	—	315,000	—	—	—	—	—	—	315,000	84,014,908
Tellurium..... lb.	—	—	—	—	2,200,000	—	—	—	—	—	—	2,200,000	130,298
Thorium..... lb.	—	—	—	—	7,400	4,500	—	—	—	—	—	58,900	937,744
Thorium..... lb.	—	—	—	—	44,600	28,200	—	—	—	—	—	72,410	72,410
Thorium..... lb.	—	—	—	—	—	—	—	—	—	—	—	356,400	467,769
Tin..... lb.	—	—	—	—	—	—	—	—	281,000	—	—	—	29,014
Tin..... lb.	—	—	—	—	—	—	—	—	531,100	—	—	—	29,014
Tin..... lb.	—	—	—	—	—	—	—	—	—	—	—	281,000	55,087
Tin..... lb.	—	—	—	—	—	—	—	—	—	—	—	288,427	288,427
Tin..... lb.	—	—	—	—	—	—	—	—	—	—	—	531,100	470,136





# DETAILED MINERAL PRODUCTION

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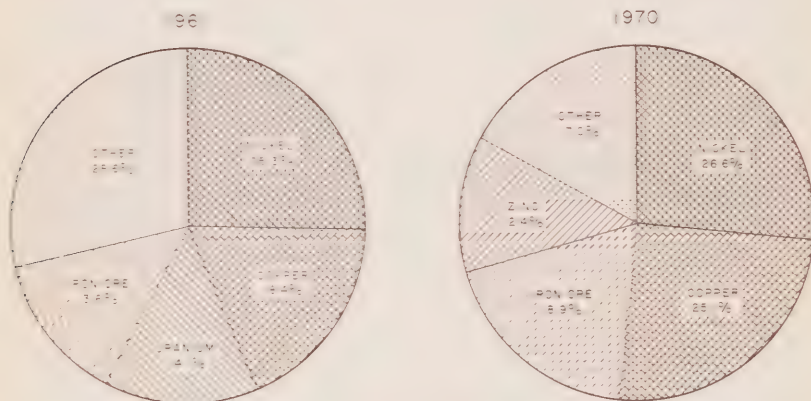
Salt.....ton	582,000	—	—	—	25,000	237,000	250,000	—	—	—	5,052,000	4,657,765
Soapstone,	7,300,000	—	—	—	185,000	3,358,000	2,039,000	—	—	—	34,248,000	30,406,109
talc, pyro-	—	—	—	—	—	—	—	—	—	—	75,000	75,850
phylite	555,000	—	250,000	—	—	—	—	—	—	—	1,138,000	1,097,568
Sodium	—	—	—	—	—	—	—	—	—	—	478,000	518,299
sulphate	—	—	—	—	—	6,421,000	1,190,000	—	—	—	7,611,000	8,051,627
Sulphur in ton	25,000	115,000	—	—	—	—	—	220,800	—	—	708,800	676,189
smelter gas	250,000	1,290,000	—	—	7,100	32,000	3,625,210	2,208,000	—	—	7,282,000	7,953,011
Sulphur, ton	—	—	—	—	—	—	—	112,440	—	—	3,779,850	2,973,506
elemental	—	—	—	—	63,000	390,500	29,255,900	973,200	—	—	30,710,800	60,725,726
Titanium	—	—	—	—	—	—	—	—	—	—	—	—
dioxide, etc.	—	—	34,470,000	—	—	—	—	—	—	—	34,470,000	30,363,558
<b>Fuels.....\$</b>	<b>21,866,000</b>	<b>3,063,000</b>	<b>25,000</b>	<b>9,547,000</b>	<b>16,307,000</b>	<b>219,614,000</b>	<b>1,324,108,000</b>	<b>122,376,000</b>	<b>1,075,000</b>	<b>1,718,041,000</b>	<b>1,465,923,630</b>	<b>1,465,923,630</b>
Coal.....ton	2,128,000	397,000	—	—	—	3,776,000	6,616,000	3,130,000	—	—	16,047,000	10,671,879
Natural gas	21,866,000	2,631,000	168,000	17,562,000	—	7,299,000	25,656,000	22,754,000	—	—	80,506,000	50,578,283
Mcf.	—	133,000	—	—	—	64,292,000	1,892,452,000	320,617,000	34,000	2,295,278,000	1,977,838,205	1,977,838,205
Natural gas	—	119,000	25,000	6,669,000	—	8,479,000	299,903,000	35,724,000	14,000	350,953,000	262,855,588	262,855,588
Natural gas	—	—	—	—	—	1,679,000	74,172,000	1,844,000	—	77,595,000	66,724,769	66,724,769
byproducts	—	—	—	—	—	2,673,000	153,339,000	3,571,000	—	159,583,000	137,919,025	137,919,025
Petroleum, bbl.	—	10,000	—	1,065,000	6,484,000	89,686,000	331,014,000	26,244,000	879,000	455,382,000	410,989,930	410,989,930
crude.....\$	—	13,000	—	2,858,000	16,307,000	201,163,000	845,270,000	60,327,000	1,061,000	1,126,999,000	1,014,570,734	1,014,570,734
<b>Structural</b>	<b>6,470,000</b>	<b>16,790,000</b>	<b>7,590,000</b>	<b>103,816,000</b>	<b>21,030,000</b>	<b>8,893,000</b>	<b>36,538,000</b>	<b>45,965,000</b>	<b>—</b>	<b>436,768,000</b>	<b>442,841,663</b>	<b>442,841,663</b>
Materials.....\$	47,000	1,570,000	500,000	6,868,000	430,000	1,340,000	3,400,000	3,915,000	—	44,059,000	51,165,915	51,165,915
Clay	—	—	—	2,020,000	443,000	142,000	894,000	558,000	—	8,065,000	8,250,032	8,250,032
Products.....\$	2,803,000	4,220,000	2,900,000	39,325,000	10,244,000	4,153,000	20,165,000	13,150,000	—	160,440,000	162,091,044	162,091,044
Cement.....ton	—	—	—	357,000	41,000	—	88,000	—	—	1,626,000	1,634,862	1,634,862
Lime.....ton	—	—	—	4,123,000	12,397,000	656,000	—	—	—	19,019,000	19,239,296	19,239,296
Sand and	3,500,000	9,000,000	7,000,000	35,000,000	9,500,000	7,700,000	14,000,000	22,500,000	—	194,100,000	201,581,498	201,581,498
ton	3,200,000	8,500,000	1,900,000	13,500,000	6,500,000	3,400,000	10,000,000	21,500,000	—	117,400,000	122,159,146	122,159,146
gravel	200,000	1,250,000	1,200,000	31,500,000	30,000,000	1,900,000	400,000	4,250,000	—	70,700,000	67,477,012	67,477,012
Stones.....ton	350,000	2,500,000	2,200,000	40,000,000	39,000,000	3,200,000	1,200,000	7,400,000	—	95,850,000	88,186,262	88,186,262
<b>Grand Totals</b>	<b>353,350,100</b>	<b>55,557,990</b>	<b>101,192,420</b>	<b>798,565,390</b>	<b>333,261,820</b>	<b>392,507,660</b>	<b>1,393,503,450</b>	<b>495,582,430</b>	<b>79,642,350</b>	<b>125,079,060</b>	<b>5,768,721,200</b>	<b>5,768,721,200</b>
1970.....\$	—	—	—	—	—	—	—	—	—	—	—	—
<b>Grand Totals</b>	<b>356,935,937</b>	<b>55,634,572</b>	<b>94,592,565</b>	<b>718,366,119</b>	<b>1,223,380,327</b>	<b>246,340,849</b>	<b>344,815,071</b>	<b>35,402,563</b>	<b>119,170,870</b>	<b>—</b>	<b>4,737,668,063</b>	<b>4,737,668,063</b>
1969.....\$	—	—	—	—	—	—	—	—	—	—	—	—

<sup>1</sup> Includes 900,000 tons of sand and gravel valued at \$500,000 produced in Prince Edward Island.  
<sup>2</sup> See footnote 1.  
<sup>3</sup> Includes sand and gravel valued at \$451,500 produced in Prince Edward Island.

## Subsection 1.—Metals

The metallic minerals of greatest dollar value to Canada in 1970 were, in order: nickel, copper, iron ore, zinc, lead, gold, silver, molybdenum, uranium and platinum group metals. These 10 metals, which accounted for 97 p.c. of the total value of metal production in 1970, and several other metals of importance are dealt with separately below.

PERCENTAGE DISTRIBUTION OF METALS PRODUCTION  
1970 COMPARED WITH 1961



**Nickel.**—Canada's production of nickel in 1970 amounted to 308,042 tons valued at \$829,643,800, a 44-p.c. increase in quantity and a 72-p.c. increase in value over 1969. A return to full production after strikes in 1969 at the Sudbury-area mines of The International Nickel Company of Canada, Limited (Inco) and Falconbridge Nickel Mines Limited accounted for the large increase. Canada's position as the world's leading producer (56 p.c. of the non-communist world's nickel in 1970) remained intact but its proportion will decline in the mid-1970s as new deposits are opened in New Caledonia, Australia, the Philippines, the Dominican Republic, Guatemala, Venezuela, Colombia, Yugoslavia and Botswana.

In Ontario, where 74 p.c. of Canada's nickel was produced in 1970, Inco operated 11 mines, four mills, two smelters, a copper refinery and a byproduct iron ore recovery plant in the Sudbury area, and a nickel refinery at Port Colborne. The company is preparing four new mines in the Sudbury area and one near Shebandwan for production. Two concentrators and a nickel refinery are also under construction. Falconbridge operated eight mines, four mills and a smelter, and is developing two new mines. At Werner Lake in northwestern Ontario, Consolidated Faraday Limited continued production and sold bulk nickel-copper concentrate to Inco. Noranda Mines Limited is preparing its 700-ton-a-day Langmuir mine, near Timmins, for production in 1972. Texmont Mines Limited has scheduled its 500-ton-a-day nickel-copper mine, near Timmins, for operation in 1971.

In Manitoba, where 25 p.c. of Canada's nickel was produced in 1970, Inco operated an integrated nickel mining-concentrating-smelting-refining facility at Thompson and continued development of two new mines. Sherritt Gordon Mines Limited at Lynn Lake produced nickel concentrates for shipment to the company's chemical refinery at Port Saskatchewan, Alta. Supplementary feed for the refinery was obtained by importing nickel-sulphide concentrates from Australia. Dumbarton Mines Limited at Bird River continued producing and trucking ore to the Faraday mill. Falconbridge continued development of the Manibridge mine at Wabowden, with production planned for 1971.



Drill jumbo at a Sudbury area nickel mine.



Only one mine produced nickel in Quebec in 1970—the Renzy Mines Limited in Hainault township. In British Columbia, Giant Mascot Mines Limited, near Hope, produced a bulk nickel-copper concentrate for export to Japan.

**9.—Producers' Shipments of Nickel, by Province, and Total Value, 1961-70**

Year	Quebec	Ontario	Manitoba	Saskatchewan	British Columbia	Northwest Territories	Canada	
							Quantity	Value
	tons	tons	tons	tons	tons	tons	tons	\$
1961.....	—	196,218	32,978	—	2,090	1,705	232,991	351,261,720
1962.....	1,540	166,582	61,482	—	1,738	900	232,242	383,784,622
1963.....	2,506	149,089	63,585	—	1,850	—	217,030	360,392,658
1964.....	2,338	162,094	62,365	—	1,699	—	228,496	379,320,510
1965.....	3,026	191,283	63,212	—	1,661	—	259,182	430,402,105
1966.....	3,975	160,214	57,812	15	1,594	—	223,610	377,479,471
1967.....	1,622	190,059	54,714	162	2,090	—	248,647	463,139,703
1968.....	886	203,747	57,923	144	1,658	—	264,358	528,235,798
1969.....	155	146,781	64,920	266	1,489	—	213,611	481,055,140
1970P.....	830	227,988	78,074	—	1,150	—	308,042	829,643,800

**Copper.**—The production of copper from Canadian mines amounted to 673,747 tons valued at \$782,490,300 in 1970, an increase of 100,502 tons and \$194,209,703 over 1969 when labour strikes caused a decline in output. Production of refined copper increased to 543,069 tons from 450,154 tons in the same comparison and consumption declined 2,418

tons to 237,838 tons. Exports of copper in concentrates increased by 21,303 tons to 179,119 tons and exports of refined copper increased by 82,369 tons to 292,403 tons.

Six smelters for the reduction of copper and nickel-copper ores and concentrates are operated in Canada. In the Sudbury district of Ontario, Inco operates smelters at Copper Cliff and Coniston, and Falconbridge Nickel Mines Limited produces nickel-copper matte at its Falconbridge smelter. Hudson Bay Mining and Smelting Co., Limited at Flin Flon, Man., smelts ores and concentrates from its own and other mines in Manitoba and Saskatchewan. Ores and concentrates from most of the copper mines in Ontario, Quebec and Newfoundland are smelted at the Noranda smelter of Noranda Mines Limited and the Murdochville smelter of Gaspé Copper Mines Limited, both in Quebec. Major expansion programs are under way at both the Noranda and Murdochville smelters. Electrolytic copper refineries are operated by Inco at Copper Cliff and by Canadian Copper Refineries Limited, a subsidiary of Noranda Mines, at Montreal East, Que. The Montreal East refinery is to be expanded by about 80,000 tons of annual capacity of refined copper.

Ten new mines producing copper were placed in operation and six mines were closed during 1970 in Canada; net production capacity was increased by about 95,000 tons of contained copper during the year. Eight new mines are scheduled to commence operations in 1971 and six are expected to close. Annual capacity should total about 835,000 tons of copper in concentrates by the end of 1971.

Copper production in Newfoundland in 1970 was 15,412 tons valued at \$17,898,600 from four producing mines. In New Brunswick, copper output increased to 7,933 tons valued at \$9,213,100 from 6,791 tons valued at \$6,984,742 in 1969. In Quebec, production was 173,533 tons valued at \$201,542,000, an increase of 13,465 tons and \$36,895,560 over 1969. More than 30 mines were operating during 1970, the main centres of production being at or near Rouyn-Noranda, Val d'Or, Matagami, Chibougamau, Murdochville and Stratford Centre. The Bell Allard and New Hosco mines near Matagami and the Solbec mine at Stratford Centre were closed, while production commenced at the Louven mine at Louvicourt.

Copper was produced at 35 mines in Ontario in 1970, the main operations being the 19 nickel-copper mines of the Sudbury district, five copper-zinc and copper mines near Timmins, and three copper-zinc mines near Manitouwadge. Mine production amounted to 291,908 tons valued at \$339,022,800, an increase of 53,098 tons and \$94,722,299 over 1969 when strikes at the Sudbury area mines reduced output. Two new small mines were opened during the year and two were closed; eight mines were being developed for production by the end of 1972.

Most of Manitoba's production of 51,445 tons of copper valued at \$59,748,800 came from the mines of Hudson Bay Mining and Smelting Co., Limited at Flin Flon and Snow Lake and, to a lesser extent, from the Lynn Lake mines of Sherritt Gordon Mines Limited. Hudson Bay operated seven mines including the Anderson Lake and Dickstone mines which were brought into production in 1970. Sherritt Gordon began production from its Fox Lake copper-zinc mine at a rate of 3,000 tons of ore daily. Copper rejects from the Inco refinery at Thompson were shipped to Copper Cliff in Ontario for refining. Copper production in Saskatchewan was from the mine of Anglo-Rouyn Mines Limited near La Ronge and from Hudson Bay's Flexar mine and that portion of the Flin Flon orebody that lies on the Saskatchewan side of the provincial boundary. Production in 1970 was 15,548 tons, 2,682 tons less than in 1969; the value was \$18,058,000 or \$693,559 less.

Production of copper in British Columbia in 1970 amounted to 109,647 tons valued at \$127,343,700, an increase of 25,939 tons and \$41,262,489 over 1969. Four new mines started production in 1970: Brenda Mines Ltd., near Peachland, Granduc Operating Company, near Stewart, Churchill Copper Corporation Ltd., near Magnum Creek, and Greyhound Mines Ltd., near Greenwood, began operations at rates of 24,000, 7,000, 750 and 2,000 tons a day, respectively. Two new mines were scheduled for operations in 1971 and four in 1972.

Production of copper in the Yukon Territory, all by New Imperial Mines Ltd., Whitehorse, increased by 317 tons in 1970 to 7,750 tons valued at \$9,000,800. Copper produced in the Northwest Territories is obtained as a byproduct of mining high-grade silver ores.

### 10.—Producers' Shipments of Copper, by Province, and Total Value, 1961-70

Year	Newfoundland	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba
	tons	tons	tons	tons	tons	tons
1961.....	15,752	—	—	149,007	211,647	12,454
1962.....	17,308	204	3,674	147,431	188,995	12,738
1963.....	14,012	237	8,964	141,400	178,960	16,980
1964.....	13,615	204	9,296	158,088	197,917	29,777
1965.....	14,823	187	10,082	173,938	216,272	30,808
1966.....	19,393	115	7,089	171,998	202,976	31,315
1967.....	21,965	28	5,786	166,385	276,146	29,560
1968.....	23,299	140	8,265	167,601	290,618	34,583
1969.....	20,464	19	6,791	160,068	238,810	37,097
1970 <sup>a</sup> .....	15,412	27	7,933	173,533	291,908	51,445
	Saskatchewan	British Columbia	Yukon Territory	Northwest Territories	Canada	
	tons	tons	tons	tons	Quantity	Value
	tons	tons	tons	tons	tons	\$
1961.....	33,479	15,845	440	463	439,087	255,157,626
1962.....	32,017	54,489	215	314	457,385	282,732,696
1963.....	29,772	62,218	—	16	452,559	284,403,710
1964.....	20,442	57,561	—	—	486,900	324,467,834
1965.....	18,732	42,565	—	471	507,878	380,951,781
1966.....	19,561	52,880	—	748	506,076	453,523,980
1967.....	22,975	86,319	3,584	566	613,314	582,585,272
1968.....	22,081	80,561	5,299	866	633,313	607,944,415
1969.....	18,230	83,708	7,433	625	573,245	588,280,597
1970 <sup>a</sup> .....	15,548	109,647	7,750	544	673,747	782,490,300

**Iron Ore.\***—Iron ore shipments amounted to 47,509,000 tons valued at \$589,126,000 in 1970, surpassing the previous record of 42,360,000 tons established in 1968 and well above the 35,763,000 tons shipped in 1969. Domestic shipments at 8,782,000 tons and exports at 38,727,000 tons were both up sharply from 1968. During 1969, the Canadian iron ore industry was unable to produce and deliver as a result of widespread iron ore industry strikes but during 1970 it operated at near capacity. Shipments exceeded production by an estimated 1,500,000 tons and stock at mines and ports, estimated to contain 10,300,000 tons at the end of 1969, went down accordingly.

Increased demand from Western Europe was mainly responsible for the new high in exports and record Canadian steel production accounted for the all-time high in domestic shipments. Crude steel production totalled 12,350,000 net tons, surpassing the previous high of 11,200,000 tons established in 1968. Domestic consumption of iron ore was 11,500,000 tons of which an estimated 9,400,000 tons were of domestic origin and the remainder imports; iron and steel plant stocks amounted to 4,100,000 tons, about 100,000 tons higher than in 1969. The trend toward lower imports continued in 1970 as they declined slightly from 2,260,000 tons in 1969 to 2,125,000 tons.

The Canadian iron ore industry, which began a period of slow growth in 1969, added only 70,000 tons to production capacity in 1970 and an estimated 420,000 tons in 1971. Annual capacity at the end of 1970 was 46,480,000 tons, including 24,830,000 tons of pellet capacity. Three major projects for Quebec-Labrador were announced in mid-1970: a 12,000,000-ton-a-year expansion of Iron Ore Company of Canada's Labrador City con-

\* Quantities of iron ore given in this Section are in long tons of 2,240 lb.



centrator; a new 6,000,000-ton-a-year concentrator and pellet plant at Sept Îles by the same company; and a 16,000,000-ton-a-year concentrator at Mount Wright by Quebec Cartier Mining Company. At least 20 companies, other than producers, were active in 1970 in the geological, metallurgical and economic evaluation of iron ore deposits and/or in the seeking of markets and financing.

In 1970, 18 companies with 19 operations produced 46,984,000 tons of iron ore and byproduct iron ore; 10 were in Ontario, four in British Columbia, two in Quebec, two in Newfoundland (Labrador) and one in Quebec-Labrador. Of the four producing provinces, Newfoundland and Ontario had record shipments of iron ore in 1970. The leading producer was Newfoundland (Labrador) with 22,219,000 tons, a 4,625,000-ton increase over the previous high in 1968, followed by Quebec with 13,079,000 tons, Ontario with 10,493,000 tons and British Columbia with 1,718,000 tons.

In Quebec-Labrador, shipments from Iron Ore Company of Canada totalled 20,108,000 tons comprised of 10,535,000 tons of pellets, 7,625,000 tons of direct-shipping ore and 1,948,000 tons of concentrate. Quebec Cartier Mining Company's production was above rated capacity and some 8,870,000 tons were shipped. Wabush Mines' shipments at 5,478,000 tons, were some 600,000 tons less than capacity and reflected extensive modifications to its pellet plant regrind mills from wet to dry; capacity production is expected in 1971. Shipments from Hilton mines, at 1,030,000 tons, exceeded production capacity by 100,000 tons because of shipments from stockpile.

In Ontario, Griffith mine approached capacity production and shipments totalled 1,503,000 tons. Sherman mine experienced gear difficulties with its three wet autogenous mills and shipments were down from 1969 by 200,000 tons to 914,000 tons. Shipments of pellets from The International Nickel Company were estimated at 667,000 tons, down about 100,000 tons from 1969. The company plans to cut back production to 600,000 tons a year in order to meet the new Ontario regulations with respect to sulphur dioxide emissions. Shipments either exceeded or equalled production capacity rate at all other mines in Ontario. Shipment of reduced iron-nickel pellets from Falconbridge Nickel Mines Limited's new 300,000-ton-a-year plant can be expected in 1971.

In British Columbia, Coast Copper Company, Limited closed the iron ore recovery plant at its copper mine on Vancouver Island because feed from its new orebody was too high in pyrrhotitic sulphur. Two iron mining operations remain in British Columbia—Texada Mines Ltd., an underground operation, and Wesfrob Mines Limited, an open-pit operation; both produced copper concentrate and magnetite concentrate. Wesfrob Mines, which began production in 1967, attained capacity production for the first time in 1970 and shipped 974,000 tons of iron ore concentrate. Shipments from Texada Mines totalled 467,000 tons of iron ore concentrate.

Exports of iron ore, at 38,727,000 tons, surpassed the record of 36,011,000 tons established in 1968 and were considerably more than the 27,906,000 tons shipped in 1969. The export weakness in 1969 was caused by loss of production brought on by labour strikes. Lower demand from the United States was more than offset by record demand from Britain and all European Coal and Steel Community (ECSC) countries. Prospects for Canadian exports in the next decade appear excellent. Of the tonnage exported in 1970, the United States took 23,842,000 tons (26,687,000 tons in 1968), Britain took 4,918,000 tons (3,351,000 tons in 1968), Federal Republic of Germany about 3,900,000 tons including about 1,900,000 tons trans-shipped from the Netherlands (2,100,000 tons in 1968 including about 700,000 tons trans-shipped from the Netherlands), Japan 2,194,000 tons (1,891,000 tons), Italy 1,602,000 tons (1,346,000 tons) and the Netherlands about 1,200,000 tons excluding the trans-shipments to Federal Republic of Germany (400,000 tons excluding the trans-shipments to Federal Republic of Germany). Exports to Belgium and Luxembourg and to Finland were higher than in 1968. Shipments to France, which began in 1969, were up sharply to 295,000 tons. Spain became an importer of Canadian iron ore for the first time in 1970, with 129,000 tons.

**Lead and Zinc.**—Mine production of lead in 1970 reached a record 383,200 short tons, 20.3 p.c. more than in 1969 and representing about 14 p.c. of the non-communist world total. Primary refined lead production of 204,600 tons was derived from two plants—one operated by Cominco Ltd. at Trail, B.C., where annual capacity is 210,000 tons, and the other operated by East Coast Smelting and Chemical Company Limited, a subsidiary of Brunswick Mining and Smelting Corporation Limited, at Belledune, N.B., where annual capacity is 30,000 tons. Exports of lead in ores and concentrates totalled 165,900 tons of contained lead, compared with 140,200 tons in 1969, and went mainly to Japan, the United States, Federal Republic of Germany and Belgium. Exports of refined lead amounted to 152,800 tons, 43 p.c. more than in 1969, and went mainly to the United States, Britain and India. The lead price, f.o.b. Toronto and Montreal, decreased from 16.5 cents a pound at the beginning of 1970 to 14.5 cents on Oct. 1, at which level it stood for the remainder of the year.

Mine production of zinc in 1970 reached a new high of 1,211,300 tons, slightly more than in 1969 and equivalent to over 29 p.c. of the non-communist world total. Canada has been the world's largest mine producer since 1964. Production of primary refined zinc declined to 460,700 tons from 466,400 tons produced in 1969; output was at 86 p.c. of the total rated capacity of Canada's four primary zinc plants. Exports of zinc in ores and concentrates, totalling 846,000 tons, went mainly to the United States, Belgium, Japan and the Netherlands. Refined exports amounted to 351,500 tons and went mainly to the United States, Britain and India. The domestic producers' price for prime western zinc, f.o.b. Toronto and Montreal, decreased from 15.5 cents a pound at the beginning of 1970 to 15.0 cents a pound on Aug. 24, at which level it stood for the remainder of the year.

Production of lead and zinc in the Northwest Territories, amounting to 110,000 and 225,000 tons, respectively, came from Pine Point Mines Limited, where mill capacity was increased to 10,000 tons daily. An exploratory mining program was initiated to develop costs and mining techniques for determining whether some 10,000,000 tons of ore reserves could be more economically mined by underground than by open-pit methods. Production of lead and zinc increased sharply in the Yukon Territory as Anvil Mining Corporation Limited ended its first full year of operations and completed the expansion of its mill capacity from 5,500 to 6,600 tons a day.

Lead and zinc production in British Columbia was mainly from Cominco Ltd.'s Sullivan mine and 10,000-ton concentrator at Kimberley; the company also operated the Bluebell mine and 700-ton mill in the Slocan district. Among other lead-zinc producers were Western Mines Limited at Buttle Lake on Vancouver Island, and Canadian Exploration Limited and Reeves MacDonald Mines Limited in southeastern British Columbia. About mid-1970, Canadian Exploration ceased lead-zinc production because of exhaustion of ore reserves. Two new lead-zinc mines began operations in southeastern British Columbia—Copperline Mines Ltd. and Silmonac Mines Limited at 600 and 150 tons of ore a day, respectively. A third—Columbia Metals Corporation Limited—was expected to begin operations about mid-1971 at its silver-lead-zinc mine and 125-ton-a-day mill near Ferguson.

Hudson Bay Mining and Smelting Co., Limited recovered lead and zinc from base metal ores of three mines at or near Flin Flon on the Saskatchewan-Manitoba border and five mines near Snow Lake, Man. Its Anderson Lake and Dickstone mines in the Snow Lake district were brought into production in November 1970, and two new mines were under development in the Flin Flon-Snow Lake area. About mid-1970, Sherritt Gordon Mines Limited brought its Fox copper-zinc mine and mill, 30 miles southwest of Lynn Lake, Man., into production at 3,000 tons of ore a day. Sherritt Gordon also continued development of its Ruttan copper-zinc deposit in northern Manitoba and planned to bring this open-pit mine into operation by July 1973 at a mill rate of 10,000 tons of ore a day.

In Ontario, Ecstall Mining Limited operated a zinc-copper-lead-silver mine and a 9,000-ton-a-day mill near Timmins and remained Canada's largest mine producer of zinc as well as Ontario's leading producer of lead. Ecstall, a subsidiary of Texas Gulf Sulphur Company, continued construction, near Timmins, of a new electrolytic zinc plant and related

facilities which will initially produce about 120,000 tons of refined zinc metal, 230,000 tons of sulphuric acid and 1,000,000 lb. of cadmium metal annually. The plant, scheduled to open early in 1972, will process zinc concentrates derived from the company's nearby Kidd Creek zinc-copper-lead-silver mine. Other Timmins-district mine producers were Kam-Kotia Mines Limited and Canadian Jamieson Mines Limited, which operated copper-zinc mines and mills. The remainder of Ontario's lead and zinc output came principally from copper-zinc-lead mines at Manitouwadge operated by Noranda Mines Limited, Geco Division, and Willroy Mines Limited. South Bay Mines Limited, associated with Selection Trust Limited of London, England, planned to bring into production by mid-1971 a zinc-copper-silver mine and 500-ton-a-day mill at Uchi Lake in the Red Lake district of north-western Ontario. Mattabi Mines Limited, jointly owned by Mattagami Lake Mines Limited and Abitibi Paper Company Ltd., continued development of its major zinc-copper-silver-lead deposit on the south side of Sturgeon Lake, near Sioux Lookout. Production at 3,000 tons of ore a day was scheduled to begin in mid-1972.

In Quebec, relatively small amounts of lead, as well as some zinc, were produced by the Cupra, D'Estrie and Solbec mines operated by the Sullivan Mining Group Ltd. in the Eastern Townships. The D'Estrie mine was brought into production late in 1970 and the Solbec property was closed about the same time because of exhaustion of ore reserves. Six mining companies associated with Noranda Mines Limited accounted for almost 85 p.c. of the zinc output in Quebec, most of the remainder coming from three mines in the Noranda-Val d'Or area, which operated copper-zinc-silver mines. Lake Dufault Mines Limited developed the Millenbach copper-zinc-silver mine adjoining its original Norbec mine in the Noranda district and planned to bring it into production in late 1971.

In New Brunswick, the largest lead-zinc producer was Brunswick Mining and Smelting Corporation Limited, which operated mines and concentrators in the Bathurst district. Other producers were Heath Steele Mines Limited, which doubled its mill capacity to 3,000 tons a day early in 1970 at its Newcastle area property, and Nigadoo River Mines Limited, which operated a 1,000-ton mill in the Bathurst district. Both companies processed zinc-copper-lead-silver ores. The Anaconda Company (Canada) Ltd. began production from a copper orebody at its Caribou property about 30 miles west of Bathurst, N.B., and continued exploration and development of its main Caribou zinc-lead-copper-silver deposit. A feasibility study was in progress during the year and it was planned to build a 300-ton pilot mill to test the concentration of the complex ore. In Newfoundland, both lead and zinc concentrates were produced at the zinc-lead-copper-silver mine of the American Smelting and Refining Company at Buchans.

Canada's mine production of lead and zinc in 1971 was forecast to be about 10 p.c. and 7 p.c., respectively, higher than 1970.

#### 11.—Producers' Shipments of Lead from Canadian Ores, by Province, and Total Value, 1961-70

Year	Newfoundland	Nova Scotia	New Brunswick	Quebec	Ontario
	tons	tons	tons	tons	tons
1961.....	21,968	—	—	3,392	835
1962.....	25,330	2,682	1,879	4,716	1,144
1963.....	23,392	1,400	1,783	4,337	1,539
1964.....	25,415	1,669	21,716	3,954	2,027
1965.....	21,916	1,841	43,654	4,213	1,943
1966.....	21,754	1,488	51,864	3,909	1,985
1967.....	19,940	397	47,016	2,882	5,529
1968.....	18,914	2,600	54,350	2,936	12,900
1969.....	22,207	2,735	51,092	1,558	12,097
1970 <sup>a</sup> .....	20,214	1,299	62,130	2,108	10,260



### 11.—Producers' Shipments of Lead from Canadian Ores, by Province, and Total Value, 1961-70—concluded

Year	Manitoba	British Columbia	Yukon Territory	Northwest Territories	Canada	
					Quantity	Value
	tons	tons	tons	tons	tons	\$
1961.....	3,054	192,800	8,385	—	230,435	47,054,765
1962.....	3,792	167,641	8,145	—	215,329	42,721,341
1963.....	2,737	157,487	8,490	—	201,165	44,256,199
1964.....	1,295	134,369	10,209	3,063	203,717	54,759,110
1965.....	1,316	125,167	8,926	82,831	291,807	90,460,323
1966.....	557	105,747	7,988	105,330	300,622	89,827,072
1967.....	1,785	103,827	7,650	127,877	317,963 <sup>1</sup>	89,029,711
1968.....	1,477	115,586	3,611	125,138	340,175 <sup>1</sup>	91,439,162
1969.....	560	105,036	14,028	106,457	318,632 <sup>1</sup>	96,672,869
1970 <sup>p</sup> .....	541	107,918	68,738	110,000	383,208	121,246,900

<sup>1</sup> Includes 1,560 tons of producers' shipments from Saskatchewan in 1967, 2,663 tons in 1968 and 2,862 in 1969.

### 12.—Producers' Shipments of Zinc, by Province, and Total Value, 1961-70

Year	Newfoundland	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba
	tons	tons	tons	tons	tons	tons
1961.....	34,638	—	—	54,005	51,937	46,509
1962.....	32,541	757	2,498	70,737	63,132	49,920
1963.....	34,485	—	10,614	75,084	66,470	46,392
1964.....	38,982	595	54,372	236,540	72,076	42,645
1965.....	36,187	299	123,595	272,883	60,675	40,763
1966.....	34,160	678	142,395	293,148	82,395	34,967
1967.....	34,851	23	151,357	245,883	268,532	36,258
1968.....	36,729	113	135,429	213,153	346,758	45,531
1969.....	32,903	132	152,728	198,531	360,286	48,889
1970 <sup>p</sup> .....	32,126	—	156,487	197,970	331,471	39,526

	Saskatchewan	British Columbia	Yukon Territory	Northwest Territories	Canada	
					Quantity	Value
	tons	tons	tons	tons	tons	\$
1961.....	28,360	194,486	6,069	—	416,004	104,749,879
1962.....	30,899	206,716	5,944	—	463,144	112,080,981
1963.....	33,320	201,432	5,925	—	473,722	121,083,466
1964.....	28,437	200,399	6,547	3,920	684,513	193,990,897
1965.....	27,983	158,336	6,624	94,690	822,035	248,254,768
1966.....	28,909	152,562	5,725	189,167	964,106	291,160,076
1967.....	28,412	131,415	4,738	209,982	1,111,453	322,099,092
1968.....	29,012	146,098	2,653	203,915	1,159,392	326,948,596
1969.....	25,143	148,333	16,531	224,148	1,207,624	367,842,352
1970 <sup>p</sup> .....	21,154	129,577	77,988	225,000	1,211,299	385,919,600

**Gold.**—Canadian gold production in 1970 amounted to 2,357,620 oz.t. valued at \$86,218,120, a decline of 7.9 p.c. from 1969. The average price for gold paid by the Royal Canadian Mint in 1970 was \$36.57 per oz.t. (Cdn.), down from \$37.69 in the previous year. From 1962 to the end of May 1970, the range in value for the Canadian dollar was \$0.916 to \$0.934 in relation to the United States dollar and the corresponding Royal Canadian Mint price for gold ranged between \$37.46 and \$38.22 per oz.t. On May 31, 1970, the Canadian dollar was allowed to float in the international exchange markets. The price of gold on the London gold market varied from a low of \$34.75 (U.S.) per oz.t. to a high of \$39.19 (U.S.). Rising costs of gold recovery and the unpegging of the Canadian dollar adversely affected the declining gold industry. Of the 32 lode gold mines operating in Canada in 1970 there was only one that did not receive assistance under the terms of the Emergency Gold Mining Assistance Act (see p. 637). The Act was extended to June 30, 1973. Three mines closed in 1970 and one commenced production.

Gold produced from lode gold mines, from base metal ores and from placer mines dropped 9.0 p.c., 0.4 p.c. and 27.0 p.c., respectively, from 1969 levels. Lode gold mines accounted for 78.4 p.c. of the total output, base metal mines 21.4 p.c. and placer mines 0.2 p.c. Ontario was the principal producing province, accounting for 48.5 p.c. of the total; Quebec, the Northwest Territories and British Columbia accounted for 29.0 p.c., 13.6 p.c. and 4.2 p.c., respectively.

In Ontario, production declined 7.0 p.c. to 1,143,920 oz.t. from 1,229,666 oz.t. in 1969; 17 lode gold mines operated during the year; two were closed. Gold recovered as a by-product from base metal ores was 6.2 p.c. of the provincial total. Quebec production declined by 10.1 p.c. to 684,800 from 761,370 oz.t. in 1969; lode gold output was 15.9 p.c. lower. Nine gold mines operated in the province in 1970; one was closed and one commenced production. Gold recovered as a byproduct from base metal ores represented 39.2 p.c. of the provincial total compared with 35.0 p.c. in 1969.

Gold production in the Northwest Territories, which was all from lode mines, was 319,560 oz.t. in 1970 compared with 328,502 oz.t. in 1969. In British Columbia, production amounted to 99,200 oz.t. compared with 117,792 oz.t. in 1969. Gold recovered as a by-product from base metal ores represented 59.4 p.c. of the provincial total. Placer gold recovered was small. The combined gold production for Saskatchewan and Manitoba, all as a byproduct of base metal production, was 77,450 oz.t. compared with 65,573 oz.t. in 1969. In the Yukon Territory production decreased from 29,682 oz.t. in 1969 to 20,400 oz.t., of which placer deposits accounted for 5,000 oz.t. Newfoundland and New Brunswick produced a combined total of 12,220 oz.t. as a byproduct of base metal production.

### 13.—Producers' Shipments of Gold, by Province, and Total Value, 1961-70

Year	Newfoundland	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan
	oz.t.	oz.t.	oz.t.	oz.t.	oz.t.	oz.t.	oz.t.
1961.....	14,429	—	—	1,054,029	2,637,720	57,747	70,784
1962.....	13,966	—	553	993,560	2,421,249	68,259	66,034
1963.....	12,318	—	1,128	917,229	2,338,854	53,084	64,813
1964.....	16,717	63	1,623	934,769	2,155,370	69,986	46,185
1965.....	23,657	—	1,659	905,380	1,946,003	67,985	46,173
1966.....	25,667	20	1,953	935,459	1,660,750	64,565	42,678
1967.....	27,258	1	1,421	835,190	1,495,385	53,945	47,895
1968.....	7,803	3	2,202	768,068	1,379,779	39,155	44,970
1969.....	8,982	13	1,396	761,370	1,229,666	28,011	39,562
1970 <sup>a</sup> .....	7,300	—	4,920	684,800	1,143,920	45,200	32,250

	Alberta	British Columbia	Yukon Territory	Northwest Territories	Canada	
					Quantity	Value
	oz.t.	oz.t.	oz.t.	oz.t.	oz.t.	\$
1961.....	171	164,467	66,878	407,474	4,473,699	158,637,366
1962.....	186	159,492	54,805	400,292	4,178,396	156,313,794
1963.....	132	159,473	55,211	400,885	4,003,127	151,118,045
1964.....	59	139,959	57,844	412,879	3,835,454	144,788,388
1965.....	200	117,764	45,031	452,479	3,606,031	136,051,943
1966.....	182	120,705	43,466	424,029	3,319,474	125,177,364
1967.....	146	126,823	17,900	380,304	2,986,268	112,731,618
1968.....	146	124,422	24,167	352,306	2,743,021	103,439,321
1969.....	133	117,792	29,682	328,502	2,545,109	95,925,158
1970 <sup>a</sup> .....	70	99,200	20,400	319,560	2,357,620	86,218,120

**Silver.**—Canada's mine production of silver in 1970 was 44,282,700 oz.t., 752,000 oz.t. greater than in 1969 and about 730,000 oz.t. less than the all-time high of 1968. The increase in 1970 resulted mainly from greater output of several base metal mines that produce silver as a byproduct, particularly Anvil Mining Corporation Limited which completed the first full year of operations at its lead-zinc-silver property in the Yukon Territory. Declines

in Newfoundland, Nova Scotia, Ontario and Saskatchewan were more than offset by higher output in the other provinces and the Territories. Ontario was again the leading silver-producing province, primarily because of the substantial byproduct silver produced at the Kidd Creek base metal mine of Ecstall Mining Limited near Timmins. Base metal ores continued to be the main source of Canadian output, accounting for some 92 p.c. of the total. More than 7 p.c. came from silver-cobalt ores mined in northern Ontario and the remainder was byproduct recovery from lode and placer gold ores.

Canadian silver production was valued at \$81,922,980 in 1970. The \$2,091,929 reduction from 1969 resulted from lower prices, which fluctuated between \$2.075 and \$1.609 per oz.t. Reported consumption of silver in 1970 was 6,034,028 oz.t. compared with 5,747,068 oz.t. in 1969, the increase being almost entirely accounted for by the greater use of silver in sterling.

Canadian Copper Refiners Limited at Montreal East, Que., was Canada's largest producer of refined silver, recovering 12,447,000 oz.t. in 1970 from the treatment of anode and blister copper. The silver refinery of Kam-Kotia Mines Limited at Cobalt, Ont., was the second largest producer, recovering 12,187,943 oz.t. in the processing of silver-cobalt ores and concentrates and in the toll refining of silver bullion and coins imported from the United States. Other producers of refined silver were Cominco at Trail, B.C., from lead and zinc ores and concentrates; Inco at Copper Cliff, Ont., from nickel-copper concentrates; and the Royal Canadian Mint at Ottawa, Ont., from gold bullion. At Belledune, N.B., East Coast Smelting and Chemical Company Limited recovered byproduct silver from lead-zinc concentrates treated in an Imperial Smelting Process blast furnace. Late in 1970, it was decided for economic reasons to close down the Kam-Kotia refinery at Cobalt, beginning Apr. 1, 1971 and terminating about mid-1971.

The three largest primary sources of silver in Canada in 1970 were: the Kidd Creek zinc-copper-silver mine near Timmins, Ont., operated by Ecstall; the Sullivan lead-zinc-silver mine at Kimberley, B.C., operated by Cominco; and the silver-lead-zinc mines in the Yukon Territory, about 200 miles north of Whitehorse, operated by United Keno Hill Mines Limited. Expressed as the silver content of concentrates produced, Ecstall recovered 12,233,834 oz.t., Cominco 2,933,096 oz.t., and United Keno 2,663,584 oz.t. Other important mine producers of byproduct silver, in declining order of output, included: Echo Bay Mines Ltd. near Port Radium, N.W.T.; Noranda Mines Limited, Geco Division, at Manitouwadge, Ont.; Brunswick Mining and Smelting Corporation Limited near Bathurst, N.B.; Heath Steele Mines Limited near Newcastle, N.B.; and American Smelting and Refining Company (Buchans Unit), Nfld.

Some 3,168,100 oz.t. of silver were derived from silver-cobalt ores mined in the Cobalt-Gowganda area of northern Ontario; the largest producer was again Silverfields Mining Corporation Limited with an output of 1,119,331 oz.t.

#### 14.—Producers' Shipments of Silver, by Province, and Total Value, 1961-70

Year	Average Price per oz.t. (Canadian funds)	Newfoundland	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba
	cts.	oz.t.	oz.t.	oz.t.	oz.t.	oz.t.	oz.t.
1961.....	94.3	1,145,105	—	—	4,315,844	8,870,402	767,543
1962.....	116.5	1,181,648	724,245	178,521	4,603,019	9,383,445	847,879
1963.....	138.4	981,005	423,189	332,472	4,441,644	9,601,621	766,976
1964.....	140.0	1,089,748	544,224	1,469,192	4,564,559	9,929,858	727,642
1965.....	140.0	1,086,978	443,630	2,745,274	5,154,403	10,822,213	707,024
1966.....	139.9	1,097,425	540,663	3,108,669	5,214,146	10,900,204	547,797
1967.....	173.2	1,073,153	89,238	3,017,416	4,659,232	14,309,391	629,311
1968.....	231.3	895,706	368,389	3,654,079	3,986,371	21,844,592	616,954
1969.....	193.1	1,024,639	267,585	4,058,976	4,334,867	22,260,439	462,763
1970 <sup>p</sup> .....	185.3	838,560	71,670	4,523,840	5,259,000	19,355,700	682,300



## 14.—Producers' Shipments of Silver, by Province, and Total Value, 1961-70—concluded

Year	Saskatchewan	British Columbia	Yukon Territory	Northwest Territories	Canada <sup>1</sup>	
					Quantity	Value
	oz.t.	oz.t.	oz.t.	oz.t.	oz.t.	\$
1961.....	876,450	8,391,640	6,937,086	77,890	31,381,977	29,580,651
1962.....	762,215	6,186,937	6,482,244	72,802	30,422,972	35,442,761
1963.....	746,683	6,451,158	6,106,037	81,206	29,932,003	41,425,891
1964.....	593,320	5,280,129	5,638,712	65,223	29,902,611	41,863,655
1965.....	640,995	4,991,109	4,615,995	1,064,824	32,272,464	45,181,450
1966.....	603,358	5,548,823	4,194,580	1,662,192	33,417,874	46,751,605
1967.....	605,215	6,082,617	3,869,374	1,980,228	36,315,189	62,897,907
1968.....	695,893	7,121,250	2,077,987	3,751,563	45,012,797	104,114,599
1969.....	649,899	5,760,534	2,685,060	2,026,367	43,530,941	84,014,909
1970 <sup>a</sup> .....	435,500	6,326,100	4,265,000	2,525,000	44,282,680	81,922,980

<sup>1</sup> Includes relatively small quantities produced in Alberta.

**Molybdenum.**—Production of molybdenum in Canada in 1970 was 35,300,000 lb. valued at \$62,600,000 compared with 29,600,000 lb. valued at \$53,400,000 in 1969. Canada was second only to the United States among world producers of molybdenum, and supplied approximately 23 p.c. of estimated non-communist world production of 155,300,000 lb.; non-communist world mine production capacity at the end of 1970 was 160,000,000 lb. a year and production in that year exceeded consumption. An excess of capacity is expected to continue for at least four years.

Brenda Mines Ltd., west of Kelowna, B.C., reached production near design-capacity at the end of March 1970 and milled 23,443 tons a day during the remainder of the year; the average milling rate in the last six months was 24,273 tons a day. Grade of ore milled was 0.221 p.c. copper and 0.065 p.c. molybdenum; production for the year was 8,100,000 lb. of molybdenum and 14,313 tons of copper. Molybdenum recovery was 87.25 p.c. and copper recovery was 90.53 p.c. Ore reserves at the end of the year were estimated at 165,000,000 tons averaging 0.182 p.c. copper and 0.049 p.c. molybdenum.

The Mount Copeland mine of King Resources Company, 18 miles northwest of Revelstoke, B.C., came into production at 200 tons of molybdenum ore a day in mid-1970. Ore reserves were estimated by the company at 180,000 tons averaging 1.82 p.c. molybdenite. Annual production should be over 1,000,000 lb. of molybdenum. Endako Mines Ltd. operated at capacity during 1970. Production was 18,200,000 lb. of which 9,400,000 lb. were in molybdenite (MoS<sub>2</sub>) concentrates and 8,800,000 lb. were in the roasted product, molybdic oxide (MoO<sub>3</sub>); the average number of tons milled a day was 27,721, grade of ore milled was 0.182 p.c. MoS<sub>2</sub>, and recovery was 82.39 p.c.; proven and probable ore reserves at the beginning of 1970 were 214,000,000 tons averaging 0.146 p.c. MoS<sub>2</sub>. Boss Mountain Division of Brynnor Mines Limited operated at an annual milling rate of 591,000 tons in 1970. Production was 2,456,000 lb.; ore reserves above the adit level were 2,500,000 tons grading 0.23 p.c. molybdenum; development and stope preparation proceeded below the adit level in preparation for mining some 1,000,000 tons of ore averaging 0.29 p.c. molybdenum. British Columbia Molybdenum Limited, a subsidiary of Kennecott Copper Corporation, operated its 6,000-ton-a-day mine and concentrator near Alice Arm at capacity during 1970; production for the year was about 6,000,000 lb. of molybdenum. Red Mountain Mines Limited, in south-central British Columbia, suspended mining operations temporarily on Dec. 22, 1970, but planned to start milling material from a new ore zone in February 1971. Production in 1970 was 587,455 lb. of molybdenum.

The molybdenum producers in Eastern Canada at the end of 1970 were: Molybdenite Corporation of Canada Limited at Lacorne, Que.; Preissac Molybdenite Mines Limited in the Preissac area near Val d'Or, Que.; and Gaspé Copper Mines Limited, which recovers

molybdenum (377,000 lb. in 1970) at its copper mining operations at Murdochville in the Gaspé Peninsula of Quebec. Cadillac Moly Mines Limited in the Preissac area ceased operation in mid-1970.

Molybdenum and copper-molybdenum properties under development in 1970 included the following. Lornex Mining Corporation Ltd. proceeded with construction and development in preparation for production in early 1972 from its large copper-molybdenum property some 33 miles south of Ashcroft in the Highland Valley of British Columbia. A production rate of 38,000 tons of ore a day is planned from an orebody estimated to contain 293,000,000 tons averaging 0.427 p.c. copper and 0.014 p.c. molybdenum. Annual production is expected to be about 54,000 tons of copper and 2,500,000 lb. of molybdenum. Capital expenditure is estimated at \$120,000,000.

Utah Construction & Mining Co. continued preparation for production at a copper-molybdenum property near Port Hardy in the northern part of Vancouver Island, a 33,000-ton-a-day mining and milling project scheduled for production in late 1971 or early 1972. Capital expenditure is estimated at \$73,500,000. Ore reserves are estimated at 280,000,000 tons averaging 0.52 p.c. copper and 0.029 p.c. molybdenum and annual output is expected to be about 53,000 tons of copper and 1,900,000 lb. of molybdenum.

Placer Development, Limited, announced plans to prepare for production by June 1972 the property of Gibraltar Mines Ltd. in the Cariboo district of British Columbia. Design-capacity is 30,000 tons of ore a day and ore reserves are estimated at over 200,000,000 tons averaging 0.39 p.c. copper and 0.016 p.c. molybdenite ( $\text{MoS}_2$ ). Estimated capital expense of bringing the property into production is \$74,000,000.

Highmont Mining Corp. Ltd. proceeded with development, sampling, metallurgical test-work and feasibility studies on its copper-molybdenum property in the Highland Valley to the east of Lornex. The expected milling rate would be about 25,000 tons of open-pit ore a day and metallurgical recovery tests indicated a recovery of 92 p.c. for copper and 83 p.c. for molybdenum.

The molybdenum property of Adanac Mining and Exploration Ltd., near the Yukon border in northern British Columbia, is undergoing an extensive program of underground drifting, bulk sampling, pilot plant metallurgical tests and production feasibility studies. The work is being carried out by Kerr Addison Mines Limited with the tentative view of bringing the property to production by mid-1973 and acquiring a 60-p.c. interest. Earlier feasibility studies and open-pit designs indicated a waste-to-ore ratio of 1.3:1 for about 70,000,000 tons averaging 0.141 p.c. molybdenite (0.0846 p.c. Mo). Initial laboratory tests indicated a recovery of 90 to 93 p.c. of contained molybdenum.

Other molybdenum and copper-molybdenum properties in British Columbia explored and studied for their production possibilities were those of Bell Molybdenum Mines Limited near Alice Arm, Della Mines Ltd. in the Cassiar district, Sileurian Chieftain Mining Company Limited in the Alice Arm area, and Valley Copper Mines Limited in the Highland Valley.

**Uranium.**—Uranium continued to be in over-supply in world markets in 1970 and the limited short-term prospects were reflected in the operations of Canadian producers. One company continued to operate at near capacity and another announced tentative plans to begin operations in 1974, but two other producers operated at less-than-full capacity and one operation was suspended. The Federal Government's five-year uranium stockpiling program ended in June 1970 but, in view of the poor short-term market situation, the Government announced that it was prepared to offer further assistance to individual producers if their circumstances warranted it.

Of particular significance was the Canadian Government's announcement in March 1970 that it intended to limit the extent of foreign ownership of uranium-producing enterprises in Canada. Basically, it was proposed that the extent of foreign ownership of established uranium producers be limited in the aggregate to 33 p.c., and for any single investor to 10 p.c. However, exceptions were proposed which would allow foreign owners

of existing producers to retain their existing holdings, and would allow foreign investors holding proprietary rights to specific mineral lands prior to Mar. 2, 1970, to be classed as existing producers provided that they develop a commercially viable uranium deposit on the lands within six years. Another proposed exception would allow a single foreign investor who carried a property through the exploration and development stage to hold the full permissible 33 p.c. of ownership. Under all of the exceptions, any transfer of ownership subsequent to Mar. 2, 1970 would have to be to Canadian residents, until the basic ownership limits were reached.

Almost 80 p.c. of production in 1970 came from the Elliot Lake area of Ontario and the remainder from the Uranium City area of Saskatchewan. At Elliot Lake, Rio Algom Mines Limited operated its Quirke mill at capacity, but Stanrock Uranium Mines Limited suspended its underground leaching program following completion of its United States sales contract. Denison Mines Limited had built up at sizable inventory at its Elliot Lake mine over the past four years. Consequently, in 1970 it reached a position where commitments could be met from inventory, permitting a temporary suspension of operations. To prevent this possibility, the company and the Canadian Government entered into an agreement in December under which the Government will provide \$29,500,000 for stockpiling of 6,467,000 lb. of  $U_3O_8$  which will assure Denison a production level of 4,000,000 lb. of  $U_3O_8$  a year over the period 1971-74. At Uranium City, Eldorado Nuclear Limited completed its second year of a planned five-year period of reduced production. Total production of uranium in Canada increased slightly in 1970 to 4,580 tons of  $U_3O_8$  in concentrates, of which 4,010 tons valued at \$50,327,000 were shipped.

Eldorado Nuclear Limited continued to be Canada's only producer of refined uranium products with its refinery at Port Hope, Ont. A new uranium hexafluoride ( $UF_6$ ) plant, designed to convert 2,500 tons of  $U_3O_8$  (2,150 tons of U) to  $UF_6$  a year, was completed at the refinery in April 1970 and the first shipment of the  $UF_6$  was made in October. Because of increasing demand, it is expected that  $UF_6$  will become the refinery's principal product in the 1970s.

Three uranium sales were announced during the year. Early in 1970, Denison confirmed an extension to its long-term 1967 contract with the Tokyo Electric Power Co., calling for an additional 16,750 tons of  $U_3O_8$  over a ten-year period commencing in 1974. In August, Gulf Minerals Company announced that it would proceed with development of its Rabbit Lake deposit in northern Saskatchewan in partnership with a Federal Republic of Germany company which has guaranteed a market for 4,000,000 lb. of  $U_3O_8$  a year; first deliveries are tentatively set for 1974. Rio Algom also announced a small sale to a Federal Republic of Germany utility for 1972 delivery.

A number of negative short-term economic factors caused a decline in uranium exploration activity in Canada in 1970, which accelerated following the Government's announcement relative to foreign ownership. However, companies remained active in the Elliot Lake and Agnew Lake areas of Ontario. A substantial program continued in the Makkovik-Kaipokok area in Labrador, and new occurrences of interest were investigated in the Burin Peninsula of southeastern Newfoundland and in the Philipsburg area of Quebec's Eastern Townships. In Western Canada, activity focused on the Wollaston Lake-Athabasca sandstone area of northeastern Saskatchewan where numerous companies searched for "Rabbit Lake-type" deposits. In the Northwest Territories, investigation of a uranium prospect on the Simpson Islands in the east arm of Great Slave Lake was of particular interest, while other areas of activity were Baker Lake, the Padlei area north of the Henik Lakes, and the Amer Lake area.

Although an upturn in orders for nuclear plants was evident in 1970, uranium continues to be in over-supply in the short term, due in part to delays in committed nuclear programs and in part to increases in maximum production capability in recent years. Uncertainty regarding the disposal of the surplus now available in various government stockpiles and in consumer and producer inventories also strongly influences the short-term situation. However, should markets develop, it is not unreasonable to anticipate that the present



Canadian uranium production capacity of 5,500 tons of  $U_3O_8$  a year could triple by the end of the decade. Increases beyond 13,000 tons a year, however, will require the discovery of new, low-cost reserves for which the geological potential is considered excellent.

### 15.—Quantity and Value of Producers' Shipments of Uranium ( $U_3O_8$ ), by Province, 1961-70

Year	Ontario		Saskatchewan		Canada	
	Quantity	Value	Quantity	Value	Quantity	Value
	lb.	\$	lb.	\$	lb.	\$
1961.....	14,970,594	151,060,610	4,310,871	44,631,014	19,281,465	195,691,624
1962.....	12,805,203	118,283,081	4,053,966	39,900,588	16,859,169	158,183,669
1963.....	12,770,421	102,951,146	3,932,645	33,957,973	16,703,066	136,909,119
1964.....	11,805,143	63,606,944	2,765,164	19,902,485	14,570,307	83,509,429
1965.....	6,825,046	47,234,892	2,060,167	15,126,485	8,885,213	62,361,377
1966.....	5,875,698	42,758,135	1,987,992	11,576,652	7,863,690	54,334,787
1967.....	5,450,639	41,418,268	2,025,589	11,603,668	7,476,228	53,021,936
1968.....	5,361,460	39,163,777	2,040,736	13,120,803	7,402,196	52,284,580
1969.....	..	40,307,489	..	12,843,168	7,707,735	53,150,657
1970 <sup>a</sup> .....	..	40,687,000	..	9,550,000	8,021,000	50,237,000

**Platinum Metals.**—Production of the platinum metals in 1970, which amounted to 461,200 oz.t. valued at \$42,696,000, was 150,796 oz.t. and \$11,815,000 higher than in 1969 when output was reduced as a result of decreased nickel production. Canadian nickel ores contain about 0.025 oz.t. of platinum metals a ton. When nickel matte is electrolytically refined, the platinoids—platinum, palladium, rhodium, ruthenium, iridium and osmium—are precipitated in the electrolytic tanks as a sludge. The sludge is purified and sent to refineries in Britain and the United States for recovery of the platinum metals.

About half of the world's output of platinum metals is from the Soviet Union and most of the remainder is produced in Canada and the Republic of South Africa. Platinum was in short supply throughout the world for the past few years but this condition changed to one of over-supply in 1970. Palladium continued to be in increasing over-supply.

**Cobalt.**—Canada's cobalt production in 1970 was 5,228,900 lb. valued at \$11,900,000 compared with 3,255,623 lb. valued at \$6,800,000 in 1969 when production was reduced by strikes at Sudbury nickel-copper-cobalt mines. Canada is one of the world's major cobalt producing countries, recovering nearly 90 p.c. of its cobalt as a byproduct of nickel-copper ores and the remainder, also a byproduct, from silver-cobalt ores. Approximately half the world's current annual supply of some 22,000 tons of cobalt is produced, as a byproduct of copper recovery, in the Democratic Republic of the Congo; the other principal cobalt producing countries are Zambia, Finland, Morocco and the Soviet Union.

**Columbium (Niobium) and Tantalum.**—St. Lawrence Columbium and Metals Corporation produced 4,886,957 lb. of columbium pentoxide ( $Cb_2O_5$ ) in the year ended Sept. 30, 1970, compared with 3,059,052 lb. in the preceding fiscal year; production during the 1970 calendar year was 4,919,000 lb. St. Lawrence Columbium, with a mine near Oka, Que., is the only Canadian producer of columbium and one of two in the world that produce columbium in pyrochlore concentrates as a principal primary product; the other is a larger producer with a mine near Araxá in Brazil. The demand for columbium continued to improve in 1970. Published spot prices at the beginning of 1970 for Canadian columbium-pyrochlore concentrates, f.o.b. mine site, were \$1.00-\$1.05 (U.S.) a pound of contained  $Cb_2O_5$ ; a price of \$1.15-\$1.20 a pound was established on July 1, 1970 for contract sales and this remained the published price in the latter part of the year.

Canada's first commercial production of tantalum began in 1969 at the Bernic Lake, Man., mine of Tantalum Mining Corporation of Canada Limited. Tantalum pentoxide ( $Ta_2O_5$ ) concentrates were first shipped in the second half of 1969 and in September the company announced a price of \$7 (U.S.) a pound of  $Ta_2O_5$  in 50-p.c. concentrate, f.o.b. mine,

for deliveries contracted through 1970. Tantalum Mining completed its first full production year in 1970 and shipped about 315,000 lb. of tantalum pentoxide. This producer became the principal United States supplier of tantalum in 1970, furnishing 47 p.c. of that country's imports; the Congo (Kinshasa) and Brazil each supplied 18 p.c.

**Cadmium.**—Cadmium output in 1970, expressed as the sum of refined metal and the recoverable cadmium content of exported zinc concentrates, was 4,246,200 lb. valued at \$16,059,000; corresponding figures for 1969 were 5,213,054 lb. and \$18,350,000. The decrease of almost 19 p.c. in the volume of output was apparently due to the treatment of lower-grade ores. Cadmium is recovered as a byproduct during the smelting and refining of zinc ores and concentrates. Most of the zinc ores in Canada carry minor quantities of the metal, varying from 0.001 p.c. to 0.067 p.c. of recoverable cadmium, and zinc concentrates contain up to 0.7 p.c. cadmium. The largest mine production comes from the Kidd Creek mine near Timmins, Ont., followed by Pine Point Mines Limited in the Northwest Territories, Cominco Ltd. in British Columbia, Hudson Bay Mining and Smelting Co., Limited in Saskatchewan and Manitoba, and the Noranda group of companies in Ontario, Quebec and New Brunswick. Refined cadmium is produced at the electrolytic plants of Cominco at Trail, B.C., Hudson Bay Mining and Smelting at Flin Flon, Man., and Canadian Electrolytic Zinc Limited at Valleyfield, Que. East Coast Smelting and Chemical Company Limited, which operates a lead-zinc blast furnace at Belledune, N.B., produced some zinc-cadmium alloy in 1970, and expects to recover refined cadmium by re-distillation beginning in 1971.

**Magnesium.**—Dominion Magnesium Limited, with mine and smelter at Haley Station, Ont., is the only primary magnesium producer in Canada; smelting capacity is 12,000 tons annually. Production in 1970 decreased almost 9 p.c. to 9,584 tons having a value of \$6,478,000 from the 1969 production of 10,637 tons worth \$7,264,000. Value of exports of primary magnesium increased from \$4,261,000 to \$5,562,000 and imports of metal and alloys totalled \$2,177,000. Canadian consumption in 1969 was 5,672 tons. World production in 1970, including communist countries, was estimated at 230,300 tons.

**Selenium and Tellurium.**—Selenium production in 1970 was 604,300 lb. valued at \$5,160,600, slightly higher than in 1969. Tellurium output was 58,900 lb. valued at \$356,400, 8.1 p.c. lower. These metals are recovered from the anode muds resulting from electrolytic refining of copper anodes at the plants of Canadian Copper Refiners Limited at Montreal East, Que., and Inco at Copper Cliff, Ont.

### Subsection 2.—Industrial Minerals

The value of industrial minerals produced in 1970, at \$935,217,800, was about 5 p.c. higher than in the previous year. A continued drop in the value of shipments of elemental sulphur and a decline in the value of structural materials was offset by increased return from sales of potash, asbestos and many other industrial minerals. Developments in a number of industrial minerals during 1970 are reviewed below.

**Asbestos.**—In 1970, 1,654,000 tons of asbestos were produced in Canada, 42,832 tons more than in 1969. The value of output increased about 9 p.c. to \$215,270,000, compared with a 5-p.c. increase in the previous year. Quebec accounts for about 82 p.c. of the Canadian production and Newfoundland, Ontario, British Columbia and the Yukon Territory for the remainder. Most of the Canadian production is exported as milled fibre and shorts, providing 70 to 75 p.c. of world exports and 35 p.c. of world production. The United States, Britain, Japan and Federal Republic of Germany together account for about 62 p.c. of the exports from Canada.

The world outlook for asbestos consumption is favourable. A 4-to-5-p.c.-a-year increase in free world demand (mostly in developing countries) is forecast and Canadian

companies have been modernizing and expanding production facilities to ensure their share of that increase. In Quebec, Canadian Johns-Manville Company, the company with the largest mine, continued mill expansion leading to increased production of 100,000 tons of fibre a year; at Thetford Mines, Asbestos Corporation Limited continued underground development of the Penhale deposit adjacent to the Normandie mine which, if proved successful, will result in new mill capacity of 8,200 tons a day. Asbestos Corporation also expects to put its Asbestos Hill deposit in the Ungava district of Quebec into production by 1972, from which about 300,000 tons of ungraded fibre will be shipped to Germany annually. Bell Asbestos Mines Ltd. proceeded with its new shaft at Thetford Mines. Abitibi Asbestos was negotiating senior financing to bring into production its asbestos property in Maizerets Township, Que. McAdam Mining Corporation Limited at Chibougamau and Abitibi Asbestos Mining Company Limited north of Amos continued exploration and diamond drilling of their respective properties.

In British Columbia, Cassiar Asbestos Corporation Limited completed the expansion of its mill from 75,000 to 110,000 tons of fibre a year and was adding mill equipment to its Clinton Creek mine in the Yukon Territory to increase output to 100,000 tons of fibre a year. Newfoundland's sole producer, Advocate Mines Limited, increased production in 1970 after settlement of a two-month strike in 1969. Ontario's asbestos production increased in 1970 as a result of a full year's output from the Reeves mine of Johns-Manville Mining and Trading Limited and from the Matheson mine of Hedman Mines Limited.

#### 16.—Quantity and Value of Producers' Shipments of Asbestos, 1961-70

Year	Quantity	Value	Year	Quantity	Value
	tons	\$		tons	\$
1961.....	1,173,695	128,955,900	1966.....	1,489,055	163,654,863
1962.....	1,215,814	130,281,966	1967.....	1,452,104	165,118,786
1963.....	1,275,530	136,956,180	1968.....	1,595,951	185,024,662
1964.....	1,419,851	145,193,443	1969.....	1,611,168	195,211,101
1965.....	1,388,212	146,188,478	1970p.....	1,654,000	215,270,000

**Potash.**—Canada's potash industry is centred in the Province of Saskatchewan where production started in 1962 and development was so rapid that in 1970 there were 10 mines in operation with a combined annual production capacity of 13,680,000 tons of potassium chloride (KCl). Canada has the world's largest production capacity but this rapid development, coupled with a downturn in fertilizer sales, has resulted in a world over-supply of potash. Canada consumes only about 7 p.c. of its production, the remainder being exported principally to the United States.

The world over-supply of potash created serious marketing problems in late 1969 and 1970. In an attempt to at least partially rationalize the market and to prevent mine closures, the Province of Saskatchewan promulgated the Potash Conservation Regulations, effective Jan. 1, 1970. Under the regulations, production at each mine is allocated using a formula that includes factors of plant capacity, market requirements and inventory needs. The production allowables are reviewed quarterly. Under the regulations, the industry operating rate in 1970 was an average of 45.5 p.c. of capacity. Prices were also regulated under the provincial regulations at not less than 33.75 cents (Cdn.) per unit of K<sub>2</sub>O equivalent.

Canadian production of potassium chloride in 1970 was 3,424,000 tons valued at \$116,402,000, a decrease in volume of 68,000 tons but an increase in value of \$47,019,484 from 1969. Exports of KCl in 1970 totalled 5,473,879 tons valued at \$121,305,000, some 77 p.c. of which went to the United States.

**Salt.**—Salt production in Canada in 1970 was 5,052,000 tons, about two thirds of which was mined rock salt primarily for snow and ice control on streets and highways and for chemical manufacture, and the remainder was fine vacuum salt and salt as brine for use



in producing caustic soda and chlorine. There are three rock salt mines, one in Nova Scotia and two in southwestern Ontario; fine salt evaporator plants and brining operations are located in Nova Scotia, Ontario, Manitoba, Saskatchewan and Alberta. Most of British Columbia's salt needs are met by imports of solar salt from Mexico and the San Francisco Bay area.

### 17.—Producers' Shipments of Salt, by Province, and Total Value, 1961-70

Year	Nova Scotia	Ontario	Manitoba	Saskatchewan	Alberta	Canada	
						Quantity	Value
	tons	tons	tons	tons	tons	tons	\$
1961.....	225,875	2,861,705	23,103	51,964	83,880	3,246,527	19,552,006
1962.....	312,519	3,155,589	25,010	54,931	90,729	3,638,778	21,927,135
1963.....	356,902	3,187,491	24,883	56,301	96,417	3,721,994	22,316,565
1964.....	448,808	3,335,683	27,744	74,952	101,411	3,988,598	23,203,742
1965.....	459,114	3,900,484	29,834	78,958	115,706	4,584,096	23,985,844
1966.....	474,981	3,782,191	27,069	84,979	122,814	4,492,034	23,846,188
1967.....	446,865	4,673,278	25,453	89,732	126,135	5,361,463	27,808,129
1968.....	473,584	4,143,759	27,120	99,480	120,381	4,864,324	31,170,092
1969.....	500,965	3,760,042	42,607	107,290	246,861	4,657,765	30,406,109
1970 <sup>a</sup> .....	582,000	3,958,000	25,000	237,000	250,000	5,052,000	34,248,000

**Sulphur.**—Canadian production of elemental sulphur in 1970 was 3,779,850 tons valued at \$30,710,800; sulphur production in all forms including sulphur recovered from smelter gases and contained in pyrites amounted to 4,671,532 tons valued at \$39,841,800. Most of the sulphur produced is extracted as elemental sulphur from sour natural gas in Western Canada. Canada is now the world's largest producer of sulphur from hydrocarbon sources and is the world's largest exporter. Exports in 1970 increased 32 p.c. over 1969 to reach a record 2,988,432 tons. However, because of world over-supply and an extremely competitive market situation, the downward trend in prices which began in early 1969 continued throughout 1970, reaching an all-time low of \$7.43 a ton at the year-end. Despite the substantial increase in exports, value of shipments decreased some 30 p.c. to \$42,861,000.

For the third consecutive year, world producers' stockpiles continued to build up as a result of increased output (notably in Canada and Poland) and slackening demands, especially in the fertilizer industry which consumes some 50 p.c. of sulphur marketed. The ever-increasing involuntary production of sulphur from such sources as sour natural gas and industrial pollution abatement adversely affects establishment of equilibrium within the foreseeable future.

### 18.—Quantity and Value of Sulphur Produced from Smelter Gases and in Pyrite and Pyrrhotite Shipments, and of Elemental Sulphur Sales, 1961-70

Year	Sulphur in Smelter Gases		Producers' Shipments Pyrite and Pyrrhotite			Sales of Elemental Sulphur <sup>1</sup>	
	Quantity <sup>2</sup>	Value	Gross Weight <sup>3</sup>	Sulphur Content	Value	Quantity	Value
	tons	\$	tons	tons	\$	tons	\$
1961.....	277,056	2,708,110	517,258	255,376	1,830,566	394,762	7,287,881
1962.....	292,728	3,089,537	517,308	257,084	1,879,584	695,098	9,286,999
1963.....	353,243	3,488,181	476,438	235,410	1,643,629	1,249,887	13,380,182
1964.....	443,448	4,261,912	351,850	173,182	1,126,167	1,788,165	18,637,597
1965.....	444,758	4,317,362	382,177	186,960	1,285,252	2,068,394	26,394,595
1966.....	500,338	6,050,750	326,954	162,300	1,139,141	2,041,528	40,253,685
1967.....	546,491	6,701,804	377,941	182,377	1,702,516	2,499,205	68,613,866
1968.....	666,370	8,915,202	314,197	155,797	2,286,442	2,580,746	79,963,600
1969.....	676,189	7,953,011	376,159	171,212	2,219,362	2,973,506	60,725,726
1970 <sup>a</sup> .....	708,800	7,282,000	325,700	182,882	1,849,000	3,779,850	30,710,800

<sup>1</sup> Recovered from sour natural gas and nickel sulphide ores.  
zinc sulphide concentrates at Arvida and Port Maitland.  
produce iron residues or sinter.

<sup>2</sup> Includes sulphur in acid made from roasting  
<sup>3</sup> From 1961, excludes pyrite and pyrrhotite used to

**Gypsum.**—Gypsum production in Canada in 1970 was approximately 6,442,000 tons. Output in general decreased from the previous year, reflecting conditions in the building construction industry in Canada and the United States. About 70 p.c. of Canada's gypsum output is exported to the United States, most of it from Nova Scotia quarries, which account for 75 p.c. of total Canadian production of crude gypsum.

#### 19.—Producers' Shipments of Gypsum, by Province, and Total Value, 1961-70

Year	New-foundland	Nova Scotia	New Brunswick	Ontario	Manitoba	British Columbia	Canada	
							Quantity	Value
	tons	tons	tons	tons	tons	tons	tons	\$
1961.....	40,699	4,113,188	85,330	425,287	122,233	153,300	4,940,037	7,750,748
1962.....	83,992	4,451,072	91,835	435,140	122,870	147,900	5,332,809	9,349,775
1963.....	232,259	4,910,536	80,544	439,206	131,767	160,954	5,955,266	11,237,952
1964.....	331,990	5,097,232	104,100	517,239	121,555	188,569	6,380,685	11,523,937
1965.....	442,655	4,862,485	101,012	531,918	159,854	207,705	6,305,629	12,533,384
1966.....	459,685	4,502,836	108,207	565,185	134,225	206,026	5,976,164	12,312,220
1967.....	439,156	3,757,329	88,641	536,375	133,897	219,986	5,175,384	11,348,351
1968.....	435,231	4,441,080	84,668	570,715	151,872	243,374	5,926,940	11,825,382
1969.....	469,339	4,754,642	81,457	622,058	165,258	280,894	6,373,648	14,995,150
1970 <sup>p</sup> .....	550,000	4,856,000	69,000	553,000	149,000	265,000	6,442,000	14,956,000

**Nepheline Syenite.**—Nepheline syenite was first produced in 1936 and, until recently when Norway started production, remained a uniquely Canadian mineral commodity. "Nepheline syenite" is a rock name that applies to a mixture of minerals, essentially the feldspars and nepheline. The presence of nepheline provides the mixture with a higher content of alumina ( $Al_2O_3$ ) than has either soda or potash feldspar and makes nepheline syenite more desirable than feldspar in certain applications, especially in the manufacture of glass, for which about 75 p.c. of the output is used. However, markets for finely ground material, used in the manufacture of whitewares such as bathroom fixtures, china, ovenware, electrical porcelain and ceramic artware, are growing rapidly. Very finely ground material is being increasingly used as a filler material in plastics, foam rubber and paints. Low-grade material is sold in bulk for use in the manufacture of fibreglass and for glazing on brick and tile.

Production originates from two mines in Canada, both located in Ontario on Blue Mountain, some 25 miles northeast of Peterborough. The deposit is pear-shaped, approximately five miles in length and up to one and a half miles in width. Reserves are very large. In 1970, production at 491,000 tons declined slightly from the 500,571 tons produced in 1969 but the value of production increased by \$211,761 to \$6,147,000 in 1970. Some 80 p.c. is exported, most of it going to the United States for use in glass manufacture. In 1970, there was a slight decrease in exports to 387,947 tons valued at \$5,063,000.

#### 20.—Production and Exports of Nepheline Syenite, 1961-70

Year	Production		Exports	
	Quantity	Value	Quantity	Value
	tons	\$	tons	\$
1961.....	240,320	2,572,169	194,598	2,249,348
1962.....	254,418	2,605,421	193,658	2,210,834
1963.....	254,000	2,699,202	203,262	2,213,942
1964.....	290,300	3,097,172	226,971	2,630,185
1965.....	339,982	3,415,387	247,200	2,968,702
1966.....	366,696	4,109,744	263,624	3,098,000
1967.....	401,601	4,752,875	307,613	3,532,000
1968.....	426,595	4,738,008	323,182	4,090,000
1969.....	500,571	5,935,239	395,613	5,120,000
1970 <sup>p</sup> .....	491,000	6,147,000	387,947	5,063,000

## Structural Materials

The value of all construction undertaken in Canada in 1970 was estimated to be \$13,200,000,000, and that of the production of structural materials, including cement, sand and gravel, stone, clay products and lime, was estimated at \$436,768,000. The latter was about 7.5 p.c. of the total value of all mineral production.

**Cement.**—Approximately 8,065,000 tons of cement were produced in Canada in 1970. Although this quantity was under the peak output attained in 1966, its value was the second highest on record. Cement is produced in all provinces except Prince Edward Island but, of the total 1970 quantity, nearly 69 p.c. was produced in Ontario and Quebec. The productive capacity of the Canadian cement industry in 1970 was 14,572,200 tons a year, which included the capacity of a new plant at Kamloops, B.C. Quebec's capacity was increased in 1970 when Independent Cement Inc., at Joliette, added one new kiln capable of providing 220,000 tons a year. A similar addition was scheduled to be made operative in 1971.

### 21. Producers' Shipments and Value, Imports, Exports and Apparent Consumption of Cement, 1961-70

Year	Shipments (sold or used)		Imports <sup>1</sup>	Exports	Apparent Consumption <sup>2</sup>
	tons	\$	tons	tons	tons
1961.....	6,205,948	103,923,644	29,217	249,377	5,985,788
1962.....	6,878,729	113,233,726	26,525	219,164	6,686,090
1963.....	7,013,662	118,614,929	31,579	272,803	6,772,438
1964.....	7,847,384	130,704,220	32,680	297,669	7,582,395
1965.....	8,427,702	142,523,169	37,619	334,887	8,130,434
1966.....	8,930,552	156,300,622	50,615	407,395	8,573,772
1967.....	7,994,954	143,150,284	44,118	328,018	7,711,054
1968.....	8,165,805	152,003,739	51,500	366,506	7,850,799
1969.....	8,250,032	162,091,044	53,396	634,208	7,669,220
1970 <sup>p</sup> .....	8,065,000	160,440,000	97,191	566,521	7,595,670

<sup>1</sup> Standard portland cement.

<sup>2</sup> Shipments plus imports less exports.

**Sand and Gravel.**—The principal uses for sand and gravel are as aggregate in concrete for building and engineering construction and as fill in road construction. Gravel in boulder sizes is used for rip-rap fill and sometimes for armour-stone construction; the normal scalped, over-size material is crushed to provide gravel and crusher-run fines. Lithologically, sand and gravel deposits are usually composed of material similar to the rock types in which the deposits are found; infrequently, deposits are composed of materials that have been transported some distance from their origin. Exploitation of these low-unit-value materials is greatly influenced by the physical characteristics of the sand or gravel, by the location of the deposit with respect to suitable markets, by the specifications established to differentiate quality products and, more recently, by land use and rehabilitation regulations.



**22.—Producers' Shipments of Sand and Gravel, by Province, and Total Value, 1961-70**

Year	Newfoundland	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario
	tons	tons	tons	tons	tons	tons
1961.....	3,383,724	544,497	5,574,377	5,014,234	44,126,199	70,208,199
1962.....	4,250,942	531,196	4,375,842	5,128,365	44,000,000	76,600,813
1963.....	4,640,993	629,475	6,633,581	4,417,611	42,375,911	80,259,750
1964.....	4,657,737	608,923	6,562,341	4,699,626	44,600,000	76,917,396
1965.....	4,258,678	412,064	6,638,138	4,569,025	45,101,021	88,564,687
1966.....	3,599,421	660,726	8,109,366	5,367,393	45,876,782	94,123,982
1967.....	3,143,938	1,327,600	6,056,265	7,604,962	45,012,646	94,751,250
1968.....	3,812,003	383,165	9,380,262	6,361,658	42,955,933	84,095,642
1969.....	3,957,022	902,218	9,167,109	3,993,628	41,500,000	82,657,386
1970 <sup>p</sup> .....	3,500,000	900,000	9,000,000	7,000,000	35,000,000	85,000,000
	Manitoba	Saskatchewan	Alberta	British Columbia	Canada	
					Quantity	Value
	tons	tons	tons	tons	tons	\$
1961.....	7,402,385	7,626,197	12,591,944	14,279,191	170,750,947	104,654,132
1962.....	9,692,025	5,317,336	13,469,848	17,879,395	181,245,762	118,603,283
1963.....	9,653,471	7,368,017	16,139,744	17,451,950	189,570,503	123,854,254
1964.....	9,871,883	9,266,648	16,777,687	19,929,117	193,791,358	125,232,132
1965.....	10,462,840	8,808,104	14,377,337	22,068,370	205,260,264	133,819,824
1966.....	9,675,796	8,314,360	12,886,213	24,295,400	212,909,439	149,826,435
1967.....	10,289,157	9,671,401	14,187,340	23,168,141	215,212,700	146,697,783
1968.....	9,563,927	9,167,702	13,600,098	25,914,119	205,234,509	129,500,553
1969.....	8,142,268	7,673,225	14,903,937	28,684,705	201,581,498	122,159,146
1970 <sup>p</sup> .....	9,500,000	7,700,000	14,000,000	22,500,000	194,100,000	117,400,000

**Stone.**—The stone industry includes those companies producing dimension stone, ornamental stone, crushed stone, whiting, and stone for metallurgical and chemical use. Dimension stone products account for less than 1 p.c. of the total volume of stone production and about 10 p.c. of the total value. Crushed stone products, consisting of materials used for concrete aggregate, railway ballast, road metal, rubble and rip-rap, terrazzo, stucco and artificial stone, etc., account for about 80 p.c. of the total volume; the remainder is used in the chemical and allied industries.

**23.—Producers' Shipments of Stone,<sup>1</sup> by Province, and Total Value, 1961-70**

Year	Newfoundland	Prince Edward Island	Nova Scotia	New Brunswick	Quebec
	tons	tons	tons	tons	tons
1961.....	322,820	225,000	1,021,880	2,957,886	22,648,010
1962.....	227,707	225,000	548,834	2,950,906	24,173,016
1963.....	382,260	225,000	457,525	4,416,799	30,003,825
1964.....	285,357	350,000	504,434	3,058,061	37,805,163
1965.....	174,985	225,306	429,078	2,139,517	44,159,242
1966.....	153,000	200,000	605,458	3,544,301	57,976,286
1967.....	240,000	725,383	585,015	3,265,148	47,764,482
1968.....	876,768	439,775	819,788	2,137,748	34,952,128
1969.....	189,929	—	1,015,901	1,208,512	32,008,732
1970 <sup>p</sup> .....	200,000	—	1,250,000	1,200,000	31,500,000

**23.—Producers' Shipments of Stone,<sup>1</sup> by Province, and Total Value, 1961-70—concluded**

Year	Ontario	Manitoba	Alberta	British Columbia	Canada	
	tons	tons	tons	tons	Quantity tons	Value \$
1961.....	18,361,843	594,921	96,753	2,709,691	48,938,804	66,567,668
1962.....	18,797,648	943,765	105,695	2,580,914	50,553,485	68,866,358
1963.....	20,402,614	3,693,144	138,894	2,935,268	62,655,329	79,883,419
1964.....	23,845,993	1,035,248	129,364	2,780,738	69,794,358	86,882,683
1965.....	24,659,053	970,536	167,782	3,832,606	76,758,105	94,847,021
1966.....	25,702,843	2,022,876	144,433	3,537,321	93,886,518	112,020,652
1967.....	25,744,989	2,012,973	141,509	3,527,809	84,007,308	103,888,272
1968.....	28,636,257	2,305,900	220,523	5,550,880	75,939,767	95,658,075
1969.....	27,034,506	699,123	314,701	5,005,608	67,477,012	88,186,262
1970 <sup>a</sup> .....	30,000,000	1,900,000	400,000	4,250,000	70,700,000	95,850,000

<sup>1</sup> Excludes limestone used to make lime or cement.

**Clay Products.**—Common clays and shales occur in most regions of Canada and are the principal raw materials used for brick and tile manufacture. Deposits of high-quality argillaceous materials used for such products as papers, refractories, high-quality white-ware, and stoneware products are relatively scarce in Canada. Consequently, china clay (kaolin), fire clay, ball clay, and stoneware clay are mostly imported. The value of production of clay products from domestic clays reached a record \$51,165,915 in 1969 and dropped to \$44,059,000 in 1970.

Table 24 refers to production of such products as brick and tile made from domestic clays. Imports of these products, mainly from the United States, have a low total value. Other clay products such as floor and wall tile, sanitary ware, pottery and dinnerware, and electrical porcelain contain a large proportion of china clay and ball clay. The value of whiteware products produced in Canada from such materials approached \$40,000,000 in 1969.

**24.—Value (Total Sales) of Producers' Shipments of Clay Products made from Domestic Clays, by Province, 1961-70**

Year	Newfoundland	Nova Scotia	New Brunswick	Quebec	Ontario
	\$	\$	\$	\$	\$
1961.....	75,890	1,582,153	744,293	8,195,790	19,036,556
1962.....	142,000	1,712,503	822,400	7,450,131	20,146,786
1963.....	92,120	1,337,430	623,166	6,852,660	21,819,687
1964.....	99,038	1,541,117	697,974	6,839,772	23,723,512
1965.....	72,717	1,828,385	667,704	6,520,653	25,130,709
1966.....	172,700	1,525,004	618,651	6,278,308	25,799,667
1967.....	199,570	1,390,252	566,500	5,611,049	27,450,940
1968.....	152,200	1,506,061	630,000	5,888,566	30,629,362
1969.....	120,280	1,625,102	584,856	6,431,629	31,672,797
1970 <sup>a</sup> .....	47,000	1,570,000	500,000	6,868,000	25,989,000
	Manitoba	Saskatchewan	Alberta	British Columbia	Canada
	\$	\$	\$	\$	\$
1961.....	623,966	1,115,474	3,517,473	2,091,353	36,982,948
1962.....	621,275	1,354,635	3,445,687	2,121,461	37,816,878
1963.....	594,072	1,044,721	3,452,835	2,337,603	38,154,294
1964.....	519,726	1,336,383	3,787,609	2,285,454	40,830,585
1965.....	487,620	1,380,916	3,555,006	3,198,872	42,337,682
1966.....	487,172	1,395,489	3,422,614	3,256,480	42,956,085
1967.....	526,405	1,158,495	4,117,469	3,336,145	44,356,825
1968.....	451,358	1,454,597	4,424,543	3,584,757	48,721,444
1969.....	345,846	1,717,850	4,640,275	4,027,280	51,165,915
1970 <sup>a</sup> .....	430,000	1,340,000	3,400,000	3,915,000	44,059,000

### Subsection 3.—Petroleum and Natural Gas

The steadily increasing demand for oil and gas spurred exploration for new reserves over a broad front in 1970. Significant additions to reserves were again achieved in traditional exploration areas in Canada, particularly in the foothills belt of Alberta and northeastern British Columbia. Nevertheless, record production rates held additions to natural gas reserves to the lowest level in recent years and proven reserves of petroleum declined for the first time since the discovery of oil at Leduc in 1947. The lack of major new oil discoveries in the Prairie Provinces has prompted a shift in exploratory attention to Canada's frontier regions where the tempo of exploration has accelerated in recent years. These remote regions include the Arctic Islands and offshore from British Columbia and the Maritime Provinces. Drilling off the Nova Scotia coast produced a potential commercial oil and gas deposit on the western tip of Sable Island in late 1971, and two major gas discoveries in the Arctic Islands during the past two years are indicative of the future potential of that area, which is large indeed.

Continuing strong demand for Canadian oil and gas in United States markets contributed significantly to the production gains of 1970. Total production of all liquid hydrocarbons—crude oil plus natural gas liquids—increased by almost 13 p.c. to 1,477,000 bbl. daily. Net production of crude oil averaged 1,260,000 bbl. a day and field and gas-plant production of natural gas liquids reached 217,000 bbl. a day. Alberta production, at 925,000 bbl., accounted for 73.2 p.c. of the total Canadian daily crude oil output, 17 p.c. more than in 1969. Production increased in all producing provinces and territories except Ontario where the decline was slight.

Total liquid hydrocarbon reserves declined to 10,439,000,000 bbl., comprised of 8,558,000,000 bbl. of crude oil and 1,880,000,000 bbl. of natural gas liquids. Reserves added in 1970 totalled 440,000,000 bbl. and, of this amount, 325,000,000 bbl. were attributed to revisions, 81,000,000 bbl. to extensions of existing fields and only 33,000,000 bbl. to new discoveries. Since production was 539,000,000 bbl. in 1970, total proven reserves showed a net decline of 99,000,000 bbl. for the year. Alberta accounted for 89 p.c. of Canada's proven liquid hydrocarbon reserve at the end of 1970.

Net withdrawals of natural gas rose 15.1 p.c. to 6,237,000 Mcf. daily in 1970 in response to increasing demand in both domestic and export markets. Proven remaining marketable reserves rose by 2.7 p.c. to 53,375,628,000 Mcf. in 1969, one of the lowest increases in recent years. Exports of crude oil and products to the United States increased to 732,000 bbl. a day in 1970 with an estimated well-head value of \$732,000,000. Although exports reached record proportions, imports of crude oil and products still exceeded exports by 27,000 bbl. a day, the daily average being 759,000 bbl.

### 25.—Quantity and Value of Production<sup>1</sup> of Crude Petroleum, by Province, 1961-70

Year	New Brunswick		Ontario		Manitoba		Saskatchewan	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	bbl.	\$	bbl.	\$	bbl.	\$	bbl.	\$
1961.....	12,024	14,429	1,149,087	3,546,772	4,480,348	10,156,053	55,859,519	115,657,134
1962.....	10,333	14,466	1,134,534	3,661,141	3,926,683	9,435,819	64,432,411	141,680,428
1963.....	7,391	10,347	1,205,376	3,840,000	3,771,023	9,176,784	71,302,572	160,273,921
1964.....	4,688	6,516	1,246,682	4,014,316	4,417,224	10,296,549	81,404,430	186,880,150
1965.....	4,103	5,744	1,279,162	4,093,318	4,946,509	11,530,305	87,788,935	200,992,767
1966.....	6,853	9,591	1,323,781	4,230,278	5,230,712	13,057,426	93,218,119	211,797,159
1967.....	8,837	12,372	1,240,159	3,523,664	5,585,141	13,998,039	92,534,900	211,721,868
1968.....	7,648	10,707	1,150,779	3,166,826	6,204,920	15,569,882	91,889,243	206,942,845
1969.....	9,176	12,846	1,161,889	3,117,031	6,204,651	15,614,716	87,413,988	196,067,467
1970 <sup>a</sup> .....	10,000	13,000	1,065,000	2,858,000	6,484,000	16,307,000	89,686,000	201,163,000

<sup>a</sup>For footnote, see end of table, p. 626.



**25.—Quantity and Value of Production<sup>1</sup> of Crude Petroleum, by Province, 1961-70—concluded**

Year	Alberta		British Columbia		Northwest Territories		Canada	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	bbl.	\$	bbl.	\$	bbl.	\$	bbl.	\$
1961.....	161,089,334	380,170,828	1,017,826 <sup>2</sup>	1,939,570	514,779	727,074	224,122,917	512,211,860
1962.....	172,183,576	391,907,037	8,014,220 <sup>2</sup>	16,871,944	597,693	788,955	251,199,450	564,359,790
1963.....	171,881,728	433,126,186	12,528,681	24,838,110	610,567	613,620	260,807,338	631,878,968
1964.....	176,183,758	451,241,841	11,551,704	23,446,494	608,557	455,201	275,417,043	676,341,067
1965.....	184,155,669	473,132,745	13,502,539	28,592,977	644,998	614,941	292,321,915	718,962,797
1966.....	203,339,433	522,989,385	16,680,707	36,360,605	749,564	861,945	320,549,259	789,306,389
1967.....	231,643,449	591,023,631	19,697,369	44,841,061	677,937	870,810	351,287,792	865,991,445
1968.....	257,186,578	660,485,368	22,205,516	50,205,117	751,592	906,871	379,396,276	937,287,616
1969.....	290,011,702	740,435,043	25,387,183	58,356,733	801,341	966,898	410,989,930	1,014,570,734
1970 <sup>2</sup> .....	331,014,000	845,270,000	26,244,000	60,327,000	879,000	1,061,000	455,382,000	1,126,999,000

<sup>1</sup> Gross production of crude oil and condensate, less returned to formation.<sup>2</sup> Excludes condensate.**26.—Natural Gas Production,<sup>1</sup> by Province and Total Value, 1962-70**

Year	New Brunswick		Ontario		Manitoba		Saskatchewan	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	Mcf.	\$	Mcf.	\$	Mcf.	\$	Mcf.	\$
1962.....	95,750	134,476	—	—	15,648,294	5,802,387	37,786,716	3,781,887
1963.....	103,522	109,520	—	—	15,920,055	6,049,621	38,647,251	4,078,426
1964.....	105,055	112,303	—	—	13,815,967	5,254,212	39,573,996	4,389,432
1965.....	105,359	105,609	—	—	12,699,483	5,798,330	42,734,910	5,030,276
1966.....	97,403	89,913	—	—	15,537,395	5,939,946	49,867,762	6,122,521
1967.....	103,877	88,002	59,130	8,870	14,228,759	5,431,117	49,975,781	6,638,205
1968.....	112,967	96,878	137,573	20,636	11,974,385	4,598,927	56,771,626	7,302,529
1969.....	106,520	95,016	137,897	20,684	11,237,888	4,275,152	58,655,877	7,429,604
1970 <sup>2</sup> .....	133,000	119,000	168,000	25,000	17,582,000	6,689,000	64,292,000	8,479,000

	Alberta		British Columbia		Northwest Territories		Canada	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	Mcf.	\$	Mcf.	\$	Mcf.	\$	Mcf.	\$
1962.....	720,644,946	83,462,142	120,439,219	10,856,131	56,689	23,510	894,671,614	104,060,533
1963.....	821,247,938	102,779,083	117,422,069	11,420,250	47,656	21,330	993,388,491	124,458,230
1964.....	946,473,793	122,698,494	134,207,548	13,188,690	34,341	14,405	1,134,210,700	145,657,536
1965.....	1,023,294,574	132,055,946	157,920,967	15,930,215	43,068	18,083	1,236,798,361	158,938,464
1966.....	1,090,691,124	146,609,428	185,591,319	19,402,660	46,238	19,522	1,341,831,241	178,183,990
1967.....	1,181,927,668	161,807,336	225,399,348	23,992,783	40,589	17,137	1,471,735,152	197,983,450
1968.....	1,363,394,712	185,356,207	259,866,922	27,875,502	42,602	17,979	1,692,300,787	225,268,658
1969.....	1,605,658,477	218,106,264	301,997,823	32,910,416	43,723	18,452	1,977,838,205	262,855,588
1970 <sup>2</sup> .....	1,892,452,000	299,903,000	320,617,000	35,724,000	34,000	14,000	2,295,278,000	350,953,000

<sup>1</sup> Gross production, less field flared and waste, injected and stored.

**Alberta.**—Both exploratory and development drilling footages declined in 1970, which may be attributed to the continuing lack of significant oil discoveries that has persisted in Alberta for the past five years. Probably the only bright spot in recent oil exploration has been the discovery of the Meekwap-Nisku field in west-central Alberta which by year-end appeared to be developing into a medium-size oil field.



*Electric lights burn constantly on this drilling rig at Atkinson Point, 50 miles northeast of Tuktoyaktuk in the Northwest Territories where oil was discovered on Jan. 14, 1971.*

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*A massive offshore oil exploration rig, built by Halifax Shipyards, moves into Bedford Basin, past Bedford Institute's research ships, to join other drilling rigs in the search for oil off Canada's Atlantic Coast.*



Exploration for natural gas, on the other hand, increased in 1970, particularly in the shallower horizons. Improved economics resulting from higher gas prices and new drilling and production techniques have increased the attractiveness of shallow gas-bearing sandstones in southern Alberta. Substantial reserves have been developed in these formations which were previously undeveloped because of production difficulties. Exploration and development also continued at a high level in western Alberta along the margins of the folded belt where operating costs are higher but reserve potential is also higher. Significant new reserves were outlined by new drilling in the Strachan-Ricinus area. The Ricinus west field was extended over five miles by recent step-out drilling and, as a result, has now been enlarged with the inclusion of an additional 37 sections at its southern end. The Strachan field limits have also been extended to the northwest in the same general area.

Great Canadian Oil Sands Limited's bituminous sands plant at Fort McMurray has been plagued with operating problems since it came on production in 1967 and in 1970 a maintenance shutdown in August restricted output for three months, thereby lowering the annual average production. Nevertheless, in September, production reached a record 52,000 bbl. a day of synthetic crude oil and if this level can be maintained there should be no problem in meeting an authorized annual production of about 16,400,000 bbl. during 1971.

The total number of wells drilled in 1970 was 1,824, down by 19 from 1969. Total footage drilled was 7,776,993 feet; development footage was 3,325,273 and exploratory drilling 4,451,720 feet, both lower than in the previous year.

**Saskatchewan.**—There has not been a significant oil discovery made in Saskatchewan for several years and, as a result, both development and exploratory drilling are beginning to show an accelerated rate of decline. Exploratory drilling at 1,081,004 feet declined 44 p.c. in 1970 and development drilling at 1,398,639 feet was down 19 p.c. In 1970, only minor accumulations of oil were discovered around the peripheries of established fields, particularly in the southwestern corner of the province where drilling activity has remained relatively stable. Most of the development drilling was confined to the heavy oil belt of western Saskatchewan where fields in the Lloydminster area are still being actively expanded.

**British Columbia.**—Drilling footage increased slightly in 1970 over the previous year but this was due mainly to exploration and development of the province's natural gas resources, encouraged by the growing export and domestic market for this commodity. The Devonian Slave Point trend north and east of Fort Nelson continued to be actively explored and exploratory efforts were rewarded by an indicated discovery at Atkinson Sunlite Helmet b-2-k, 80 miles northeast of Fort Nelson. A number of potential Slave Point gas discoveries have been drilled in the same general area and have been capped pending construction of pipeline connections. Farther south, additional Slave Point gas development wells were drilled in and near the established fields in the Fort Nelson area.

In the offshore area of Western Canada, Shell Canada Limited completed its drilling program in 1969 and since that time industry interest in this area has not been revived.

**Manitoba.**—Both development and exploratory drilling declined to the lowest level since the province's initial oil discovery was made in the early 1950s. Aggregate drilling totalled 55,000 feet in 1970 compared to 146,000 feet in 1969. The lack of success in finding reserves in pre-Mississippian formations, particularly the Devonian, has contributed to a steadily declining discovery rate in the past 10 years. However, companies continued to evaluate the onshore extension of the sediments underlying the Hudson Bay area which is the only remaining unexplored area with a potential for significant accumulations of oil and gas. A core-hole, located about 115 miles southeast of Churchill, was drilled to a depth of 1,401 feet but the results of this test have not yet been released.



**Yukon Territory, Northwest Territories and Arctic Islands.**—The expectations held by the petroleum industry for exploratory drilling in Canada's frontier areas came closer to reality in 1970 with the announcement of two spectacular discoveries—oil at Atkinson Point on the mainland and gas on King Christian Island. The Atkinson Point discovery was made in early 1970 in the Mackenzie delta region and subsequent step-out drilling was unsuccessful indicating that the discovery was not large. However, early in 1971, the future potential of this region became apparent when two separate discoveries were reported in the area immediately to the west of the Atkinson well—one oil and the other gas and condensate. The significance of these discoveries in terms of reserves has not yet been determined.

Farther north, Panarctic Oils Ltd. was in its third season of the costly search for oil and gas in the Arctic Islands. Panarctic is an industry-government company consisting of 20 companies in partnership with the Federal Government, which holds a 45-p.c. financial interest in the organization. To the end of 1970, about \$50,000,000 had been spent on exploration programs which had yielded two large gas discoveries—the first on Melville Island in 1969 and the second, in late 1970, on King Christian Island. Although it is too early to estimate the magnitude of the 1970 discovery, industry officials say that it could be one of the largest natural gas reservoirs ever discovered in Canada. The rising level of exploratory activity in the Arctic Islands increased in tempo with several more drilling ventures undertaken in 1971. Total footage drilled, all exploratory, increased substantially in 1970 to 70 wells (361,710 feet) from 56 wells (274,401 feet) in 1969.

**Eastern Canada.**—The search for major new reserves off Canada's East Coast covered a broad area in 1970 and, although no commercial discoveries were made, encouraging oil and gas shows were encountered in several tests. Shell Canada Limited completed the 13th well in its extensive offshore drilling program in the Atlantic off Nova Scotia and at year-end was drilling its 14th and 15th. The tests were spread over an area extending from about 150 miles southwest of Halifax to a point about 220 miles east of Halifax, although most of the wells were located within a 100-mile area to the north and south of Sable Island. In addition, two wells were drilled in the area between Prince Edward Island and Cape Breton Island and another four exploratory wells were completed in Quebec, two of which were drilled on islands in the Gulf of St. Lawrence. None of these was successful. Drilling activity accelerated and late in the year was rewarded by an oil and gas-condensate discovery on Sable Island. Future drilling will determine the size and significance of this discovery.

In Ontario, total footage drilled amounted to 308,000 feet—a 24-p.c. decrease over 1969. Exploratory drilling at 147,152 accounted for 48 p.c. of the total, down 53 p.c. from the previous year.

**Petroleum Refining and Marketing.**—Daily crude oil refining capacity continues to increase year by year, the total in 1970 reaching 1,352,250 bbl. Canada ranks ninth in the world in terms of crude treating capacity and is unquestionably one of the most advanced countries in terms of down-stream refinery units such as catalytic cracking and catalytic reforming.

In 1970, Canadian refineries received 1,280,000 bbl. of crude oil daily, of which amount domestic oil accounted for 55 p.c. Imported crude, on an average daily basis, amounted to 572,000 bbl. with 364,000 bbl. coming from Venezuela, 55,000 from Iran, 48,000 from Nigeria, 29,000 from Saudi Arabia, 23,000 from Iraq, 20,000 from Colombia, 14,000 from Trucial States, 13,000 from Kuwait and 6,000 from Trinidad. Imports of refined products decreased to 197,000 bbl. daily, a loss of 6,000 bbl. from the daily total for 1969. Heavy fuel oil, light fuel oil, diesel and motor gasoline were the major categories of imports.

**27.—Crude Oil Refining Capacity, by Region, as at Jan. 1, 1968-70**

Region	1968		1969		1970	
	bbl./day	p.c.	bbl./day	p.c.	bbl./day	p.c.
Atlantic Provinces.....	128,100	10.5	132,600	10.2	135,100	10.0
Quebec.....	400,400	32.8	449,600	34.6	460,600	34.0
Ontario.....	359,100	29.4	367,000	28.3	389,200	28.8
Prairie Provinces and Northwest Territories.....	222,150	18.1	236,950	18.3	241,550	17.9
British Columbia.....	112,400	9.2	111,700	8.6	125,800	9.3
<b>Canada.....</b>	<b>1,222,150</b>	<b>100.0</b>	<b>1,297,850</b>	<b>100.0</b>	<b>1,352,250</b>	<b>100.0</b>

**28.—Domestic and Foreign Crude Oil Received at Canadian Refineries, by Region, 1968-70**

Region	1968		1969		1970	
	Domestic	Foreign	Domestic	Foreign	Domestic	Foreign
	bbl./day	bbl./day	bbl./day	bbl./day	bbl./day	bbl./day
Atlantic Provinces and Quebec.....	—	487,460	—	520,689	—	569,537
Ontario.....	328,804	1,288	340,727	1,155	369,566	1,257
Prairie Provinces and Northwest Territories.....	206,301	—	215,695	—	219,646	—
British Columbia.....	111,214	—	106,531	—	120,284	—
<b>Canada.....</b>	<b>646,319</b>	<b>488,748</b>	<b>662,953</b>	<b>521,844</b>	<b>709,496</b>	<b>570,794</b>

Domestic demand in 1970 was made up of 1,399,000 bbl. daily of sales to consumers and 94,000 bbl. daily used at refineries, a total of 1,493,000 bbl. daily compared with the 1969 level of 1,404,000 bbl. Exports of crude oil, all to the United States, averaged 669,770 bbl. daily and refinery product exports amounted to 16,072 bbl. daily.

**Natural Gas Processing and Marketing.**—Natural gas consumers and gas pipeline companies require gas that contains relatively little non-flammable content and is free of noxious components. Since a large proportion of gas produced in Canada does not meet market specifications, there is a major gas processing industry located mainly in Alberta which extracts ingredients that, in themselves, are valuable. These byproducts include propane, butanes, pentanes plus and elemental sulphur. At the end of 1970, there were 153 gas plants operating in Canada—138 in Alberta, four in British Columbia, seven in Saskatchewan and four in Ontario. The addition in 1970 of 1,531,000 Mcf. daily of raw gas treating capacity raised the total to 10,427,000 Mcf. daily.

Of the 2,535,000,000 Mcf. of Canadian gas plus imports of 10,860,000 Mcf. available for consumption in 1970, 779,487,000 Mcf. went to the United States, 917,441,000 Mcf. was sold to residential, commercial and industrial consumers in Canada, and the remainder was used by the industry in pipeline, field or plant use. In total, 1,154,200,000 Mcf. of gas was consumed in Canada compared with 1,027,200,000 Mcf. in 1969.

Table 29 shows sales of natural gas in Canada as well as the number of customers. During 1970, natural gas supplied roughly 23.5 p.c. of Canada's energy requirements.

## 29.—Sales of Natural Gas in Canada, by Province, 1970 with Totals for 1966-70

Province	Sales		Value per Mcf.	Customers Dec. 31
	Quantity	Value		
	Mcf.	\$	\$	No.
New Brunswick.....	62,062	172,554	2.78	1,580
Quebec.....	50,704,583	47,852,254	0.94	213,595
Ontario.....	405,981,777	315,589,198	0.78	827,674
Manitoba.....	51,546,350	32,842,755	0.64	129,085
Saskatchewan.....	79,660,140	37,986,486	0.48	145,567
Alberta.....	232,699,632	74,697,399	0.32	320,073
British Columbia.....	96,786,335	73,176,302	0.76	252,234
<b>Canada, 1970.....</b>	<b>917,440,879</b>	<b>582,316,948</b>	<b>0.64</b>	<b>1,889,808</b>
1969.....	844,713,385	537,248,064	0.64	1,836,681
1968.....	766,004,594	490,112,130	0.64	1,767,010
1967.....	695,106,183	455,510,363	0.66	1,678,543
1966.....	635,514,622	416,212,202	0.65	1,626,783

## Subsection 4.—Coal

The Canadian coal industry recorded the largest percentage increase in production for a single year in 1970. Total production increased 55 p.c. to 16,600,000 tons valued at \$86,000,000. Regionally, production in 1970 decreased 24 p.c. in Eastern Canada and increased 90 p.c. in Western Canada. For the first time in 17 years, the industry produced more than 16,000,000 tons of coal. Revival of the Western Canada coal industry is directly attributable to the growth of two developing markets—the Japanese steel industry and the domestic thermal-electric generating industry. Export shipments, virtually all to Japan, increased 220 p.c. to 4,400,000 tons, compared with 1,400,000 tons in 1969. Landed coal imports increased slightly to 18,900,000 tons. All imported coal entered from the United States, principally for consumption in Ontario. Of the estimated 31,000,000 tons of all types of coal consumed in Canada in 1970, 15,200,000 tons were used to generate electric power. For the same period, 8,100,000 tons of bituminous coal were carbonized to produce 5,700,000 tons of coke and the remainder was used principally for industrial and commercial heating purposes.

In 1970, the Canadian coal industry began a period of unprecedented growth which is expected to continue throughout most of the decade. During the year, three new coking coal mines—Kaiser Resources Ltd., Cardinal River Coals Ltd., and McIntyre Porcupine Mines Limited—commenced production. A new mine operated by Alberta Coal Ltd. began production of subbituminous coal. Total coal production capacity was increased by 4,000,000 tons in 1970; 4,000,000 additional tons were to be added in 1971 and 3,000,000 additional tons in 1972. None of the new mines reached full production capacity in 1970 but all were expected to be at full capacity by late 1971.

## 30.—Coal Production, by Province, and Total Value, 1961-70

Year	Nova Scotia	New Brunswick	Saskat- chewan	Alberta	British Columbia	Yukon Territory	Canada <sup>1</sup>	
							Quantity	Value
	tons	tons	tons	tons	tons	tons	tons	\$
1961.....	4,303,897	892,473	2,262,049	1,991,008	878,649	7,703	10,335,779	70,181,387
1962.....	4,204,576	815,334	2,246,923	2,120,958	821,178	7,649	10,216,618	69,200,448
1963.....	4,575,527	886,027	1,860,202	2,293,321	828,315	8,231	10,451,623	72,051,912
1964.....	4,309,332	1,002,417	2,020,237	2,974,732	905,374	7,219	11,219,311	73,012,623
1965.....	4,154,211	995,260	2,113,174	3,413,361	815,262	8,801	11,500,069	76,294,969
1966.....	3,866,203	896,853	2,084,293	3,461,026	866,225	5,273	11,179,873	81,800,741
1967.....	3,748,451	837,029	1,996,986	3,596,308	960,648	1,912	11,141,334	56,500,237 <sup>1</sup>
1968.....	3,131,745	797,359	2,250,219	3,920,120	889,564	—	10,989,007	53,969,558 <sup>1</sup>
1969.....	2,621,330	701,952	2,020,105	4,426,060	902,432	—	10,671,870	50,578,283 <sup>1</sup>
1970.....	2,122,358	395,642	3,819,191	6,783,911	3,483,062	—	16,604,164	86,272,845 <sup>1</sup>

<sup>1</sup> Excludes subvention payments; prior to 1967, values include whatever amounts of subvention aids the various mines may have included in their returns.



## 31.—Consumption of Canadian and Imported Coal in Canada, 1961-70

Year	Imported Coal 'Entered for Consumption' <sup>2</sup>						Grand Total	Con- sumption per Capita
	Canadian Coal <sup>1</sup>		From United States	From Britain	Total <sup>3</sup>			
	tons	p.c.			tons	tons		
1961.....	9,572,805	44.3	12,253,272	53,226	12,057,086	55.7	21,629,891	1.19
1962.....	9,510,293	43.4	12,583,618	30,571	12,377,965	56.6	21,888,258	1.18
1963.....	9,504,903	42.0	13,348,913	21,101	13,105,686	58.0	22,610,589	1.20
1964.....	10,080,243	40.0	14,983,536	5,578	14,987,656	59.8	25,067,899	1.29
1965.....	10,181,171	38.0	16,590,348	5,045	16,593,547	62.0	26,774,718	1.35
1966.....	10,117,756	38.1	16,436,755	—	16,435,111	61.9	26,552,867	1.32
1967.....	9,764,754	37.7	16,114,190	—	16,113,329	62.3	25,878,083	1.26
1968.....	9,879,860	36.7	17,046,745	—	17,044,880	63.3	26,924,740	1.30
1969.....	8,928,341	34.0	17,347,404	—	17,346,667	66.0	26,275,008	1.25
1970.....	10,869,507	37.0	18,863,779	—	18,847,329	64.0	29,716,836	1.39

<sup>1</sup> The sum of Canadian coal mines' sales, colliery consumption, coal supplied to employees and coal used in making coke, etc., less the tonnage of coal exported. <sup>2</sup> Imports of briquettes are not included in this table but are shown separately in Table 32. <sup>3</sup> Deductions have been made from this column to take account of foreign coal re-exported from Canada; bituminous coal ex-warehoused for ships' stores was deducted for the years prior to 1964.

## 32. Imports of Anthracite, Bituminous and Lignite Coal and Briquettes and Exports of Domestic Coal, 1961-70

Year	Imports of Coal and Briquettes					Exports of Domestic Coal <sup>1</sup>	
	Anthra-cite	Bitumi-nous <sup>2</sup>	Bri-quettes <sup>3</sup>	Total		tons	\$
	tons	tons	tons	tons	\$		
1961.....	1,058,157	11,248,341	9,664	12,316,162	71,717,030	939,336	8,540,749
1962.....	914,336	11,699,853	7,608	12,621,797	74,307,252	893,919	8,207,354
1963.....	847,326	12,523,080	6,445	13,376,851	78,837,274	1,054,367	9,870,185
1964.....	653,838	14,335,276	7,140	14,996,254	86,472,326	1,291,664	11,971,857
1965.....	640,161	15,955,232	7,934	16,603,327	126,200,054	1,225,994	12,671,785
1966.....	594,193	15,842,562	6,583	16,443,338	141,038,000	1,228,820	13,202,161
1967.....	525,645	15,588,545	8,489	16,122,679	145,544,000	1,338,353	15,091,852
1968.....	430,197	16,616,548	6,062	17,052,801	160,391,000	1,447,012	16,336,038
1969.....	436,017	16,911,387	6,061	17,353,465	113,894,378 <sup>4</sup>	1,377,872	9,451,102
1970.....	353,444	18,510,335	10,165	18,873,944	150,831,860	4,391,675	29,155,397

<sup>1</sup> Prior to 1964, figures include coal ex-warehoused for ships' stores. <sup>2</sup> Includes foreign coal re-exported from Canada. <sup>3</sup> Coal and coke. <sup>4</sup> Excludes briquettes.

## Provincial Production and Mine Developments

**British Columbia.**—In 1970, production of low- and medium-volatile bituminous coals more than tripled to reach some 3,500,000 tons, as Kaiser Resources commenced production from its Harmer Ridge surface mine in the Crowsnest Pass area of southeastern British Columbia. Virtually all Kaiser's output is committed to Japan under long-term contracts valued in excess of \$1,000,000,000. Although difficulties were experienced relating to Kaiser's initial mining plan and operation of its preparation plant and dryer, these problems were expected to be overcome by late 1971 so that contractual obligations would be met.

During 1970, Fording Coal Limited continued preproduction developments at its medium volatile bituminous coal property located along the Elk River, 35 miles north of the Kaiser mine. Production is expected in early 1972 with shipments being made to Japan through the deepsea terminal at Roberts Bank, Vancouver. Fording's present export contract with Japanese steelmakers calls for 45,000,000 long tons to be delivered over a 15-year period.

There was considerable coal exploration carried on throughout 1970-71, mainly in the Crowsnest Pass area.

**Alberta.**—Alberta is Canada's leading coal-producing province and has the greatest number of coal mines. Some of these are relatively small, although the recent trend has been to larger but fewer mines to meet expanding markets. Most of the bituminous coal production is exported to Japan for steelmaking while subbituminous output is used mainly by thermal generating plants in Alberta. In 1970, total coal production increased by over 50 p.c. with bituminous output more than doubling.

Two new mines commenced production of high-grade coking coals in 1970. The new surface mine of Cardinal River Coals Ltd. in the Luscar area began production for export to Japan of some 15,000,000 long tons over 15 years. Approximately 80 miles northwest of Luscar, at Smoky River, the new underground mine of McIntyre Porcupine Mines Limited began production in May. McIntyre also has a 15-year contract but for delivery of 30,000,000 long tons to Japanese steelmakers.

With the high demand for subbituminous coals for thermal power generation, the major producing surface mines expanded operations. The new Highvale mine, owned by Calgary Power Ltd. and operated by Alberta Coal Ltd., started production on the south shore of Lake Wabamun. This mine is adjacent to Calgary Power's new Sundance coal-fired thermal generating station which will require 5,000,000 tons of coal annually when fully developed.

Exploration was very active during the year for both coking and thermal coals.

**Saskatchewan.**—Production of lignitic coals from the Estevan area of southeastern Saskatchewan reached a record in 1970 as demand from thermal generating plants increased. Shipments rose not only to Saskatchewan plants but to Manitoba and Ontario as well. Due to shortages of United States coals, Saskatchewan lignite was used for the first time in significant quantities by Ontario Hydro in two of its southern Ontario generating plants.

**Yukon Territory.**—In 1970, Anvil Mining Corporation Limited continued to produce small amounts of coal at Carmacks for its lead-zinc operation at Vangorda Creek. In the southern part of the Territory, a number of companies carried on exploration activities for coal.

**New Brunswick.**—Coal production was down about 40 p.c. in 1970 due to the gradual phasing down of the coal industry in the province. The provincially owned corporation, N.B. Coal Limited, completed its first full year of managing and operating the New Brunswick coal mines. New Brunswick coal is used chiefly for local thermal power generation by the provincial utility company.

**Nova Scotia.**—In 1970, Nova Scotia coal production declined by about one fifth to 2,100,000 tons from nine operating mines. The largest producer, Cape Breton Development Corporation (DEVCO), proceeded with some modernization of existing collieries and continued development of a new mine at Lingan scheduled for opening in 1974. Chief markets for Nova Scotia coal are thermal power generation and coke-making.

## Section 2.—Government Aid to the Mineral Industry

### Subsection 1.—Federal Government Aid

Federal assistance to the mining industry takes the form of the provision of detailed geological, geophysical, topographical, geodetic, geographical and marine data which are of basic importance to the discovery and development of the mineral resources of Canada; the provision, through laboratory and pilot-plant research, of technical information concerning the processing of ores, industrial minerals and fuels on a commercial scale; financial and technical assistance to the gold-mining industry under the Emergency Gold Mining Assistance Act; and certain tax incentives.

**The Department of Energy, Mines and Resources.**—The federal Department of Energy, Mines and Resources was created by the Government Organization Act on Oct. 1, 1966 (RSC 1970, c. E-6). Apart from its administrative establishments, the Department is made up of three Sectors—Science and Technology, Mineral Development and Energy Development—each headed by an assistant deputy minister and each aiding the Canadian mineral industry according to its assigned responsibility.

The *Science and Technology Sector* contains the Mines Branch, the Geological Survey of Canada, the Surveys and Mapping Branch, the Earth Physics Branch, the Atlantic Geosciences Centre, the Polar Continental Shelf Project and the Remote Sensing Centre.

The Mines Branch is a large laboratory and pilot-plant complex carrying out applied and basic research to discover new and better methods of ensuring mine safety, extracting and refining ores and other minerals, and using metals and minerals in industry and defence. Gratifying results are being achieved in the extraction of metals from ores and in the refining of low-grade crude oil, in the automation of grinding circuits and cyanide leaching processes in gold mills and in the leaching of ground or crushed uranium ores by bacteria; an example of work that has resulted in direct economic benefit has been the development of a process to produce metallurgical coke from western Canadian coal, made possible by a long-term contract to export coke to Japan. In pyrometallurgy—the extraction of metals by heat—applied research is concentrated principally on the combination of shaft and electric furnaces for smelting iron ore. In petroleum refining, research concerns hydrogenation, catalytic cracking, and catalyst development. This work is highly significant because of the opening-up of unconventional sources such as the Athabasca tar sands and the so-called Colorado oil shales, whose economic importance has been recognized by the Mines Branch for many years. A close tie-in with producers is maintained in mineral processing in which the emphasis is on the concentration of metallic ores and on the processing and improvement of industrial minerals. In the field of mineral sciences, the physical, chemical, crystallographic and magnetic studies being undertaken on sulphide minerals are of fundamental interest. In physical metallurgy, experiments on new alloy combinations continue to yield valuable practical benefits for Canadian industry.

The Mines Branch is assisted in its work by the National Advisory Committee on Mining and Metallurgical Research, comprised of senior executives and researchers from industry, government and universities. On the advice of this Committee, the Mines Branch awards an annual series of research grants in mining sciences to Canadian universities. In 1970, the total amount distributed was \$112,000.

The Geological Survey of Canada maps and studies the geology of Canada. It is the major organization engaged in this work in Canada and its studies extend to all provinces and territories. Its activities are designed to support two programs of the federal Department of Energy, Mines and Resources, the Mineral and Energy Resource Program and the Earth Science Program. A principal aim of the former is to ascertain the mineral and energy resources potential available to Canada and thus the Survey expends considerable effort in such fields as the estimation of the potential abundance and probable distribution of mineral and fuel resources. This is done by providing the necessary systematic geological framework, by establishing settings favourable to the occurrence of the various types of mineral commodities and fuels and by comparing these by appraising foreign mineral and fuel resources and by other studies. The Earth Science Program includes activities designed to assist in effective use and conservation of resources and in the management and preservation of man's environment throughout Canada. To assist in this, the Geological Survey provides geologically based information on land resources and terrain performance which is derived from geological, geomorphic, geophysical, geotechnical and related studies of earth and rock materials, land forms and associated dynamic processes.

In support of these activities, the Survey each year sends about 100 parties into various parts of Canada. The results of its studies are published in memoirs, bulletins, papers, maps and numerous scientific technical journals. Headquarters are in Ottawa but there are several regional offices of which the Institute of Sedimentary and Petroleum Geology in



Calgary is the largest. Research grants to Canadian universities made by the Survey totalled \$278,000 in 1970, and were awarded on the recommendation of the National Advisory Committee on Research in Geological Sciences.

The Earth Physics Branch carries out much geophysical work of interest to the mineral industry. It studies, collects and publishes, in the form of maps and charts, information on the geomagnetic field in Canada. Most of the information published is obtained from airborne geomagnetic surveys, which have ranged over the whole of Canada and across the Atlantic to Scandinavia. In addition, the Branch has a network of 10 permanent geomagnetic observatories, as well as temporary observatories in summer at many widely distributed sites. It also operates a network of 29 seismic stations to assist in the study of the earth's interior and to obtain data for its quantitative assessment of seismic risk throughout Canada. In gravity research, another means of studying the composition of the earth's crust, the Branch is systematically mapping variations in the earth's gravity on a regional basis throughout Canada, including the Arctic and the floors of the Gulf of St. Lawrence and Hudson Bay. The results of all gravity measurements to the end of 1966 are available in a new Gravity Map of Canada on a scale of 1:5,000,000, or about 80 miles to the inch, for easy comparison with the new Geological and Tectonic maps of Canada on a similar scale.

The Atlantic Geosciences Centre is located in the Bedford Institute at Dartmouth, N.S. Its geologists and geophysicists study and investigate the deep structure of the continental shelves and the floors of the open ocean. The importance of this work can be seen in the light of the rapidly increasing interest in the potential mineral resources of continental shelves and of the world ocean. EMR scientists also study material from offshore wells drilled by industry. Information gained from wells, when integrated with that from marine geological and geophysical surveys, provides the geological framework from which (a) the oil and gas potential may be estimated and (b) geological conditions evaluated to permit the regulation and supervision necessary to attain orderly and safe exploration of offshore fuel resources. Because of the surge in exploration for petroleum in Eastern Canada's sedimentary basins and the Gulf of St. Lawrence, EMR's geological and geophysical research is of great interest and value to the petroleum industry.

No mineral development is possible without accurate, large-scale topographical maps. The Surveys and Mapping Branch, in conjunction with the Mapping and Charting Establishment of the Department of National Defence, has completed the topographical mapping of the country at the medium scale of 1:250,000, or about four miles to the inch. About 40 p.c. of the larger-scale mapping at 1:50,000 has been completed in the more settled areas and areas of greater economic importance.

The *Mineral Development Sector* is composed of the Mineral Resources Branch and the Explosives Division. The Explosives Division is responsible for the administration of the federal Explosives Act which is primarily an Act of public safety to control the manufacture, authorization, storage, sale, importation and transportation by road of explosives.

The Mineral Resources Branch is responsible for resource-economic research, program development and policy formulation in the field of non-renewable resources. It conducts fundamental and applied resource-engineering-economic research and field investigations into non-renewable resource problems, policies and programs on a commodity or total industry basis, in a regional, national and international context. The work covers all aspects of the mineral industry from resources through exploration, development, production, processing, transportation and consumption. On the basis of this work, the Branch publishes resource-engineering-economic reports and advises government departments and agencies on non-renewable resource policy matters. Current activities include regional studies of the mineral economy of a number of areas in Canada; assessment of mineral projects in various parts of Canada for which federal support has been requested; mineral resource and mineral reserve studies in a number of mineral commodities, including the mineral fuels, uranium and coal; and the safeguarding of Canadian mineral interests through participation in international agencies such as the United Nations Lead-Zinc Study Group,

the Economic Commission for Europe, the Committee on Natural Resources on ECOSOC, and the International Tin Council. The Branch administers the Emergency Gold Mining Assistance Act as a means of aiding a number of mining communities largely dependent upon the gold mines. In collaboration with the Canadian International Development Agency and with the support of industry, the Branch is setting up training courses for mineral scientists, technologists and economists brought to Canada under the various aid programs, and is advising on mineral projects undertaken by Canada as an aid to developing countries. The Branch publishes an extensive series of reports and other material, and maintains the Mineral Occurrence Index, which is a listing of about 10,000 mineral showings and deposits in Canada that may be consulted by anyone interested.

The *Energy Development Sector* examines energy in all its forms—coal, oil, gas, uranium, and conventional and nuclear-generated electric power—to ensure that national development policies are related in the most effective and economic way to Canadian needs. As policy considerations must have regard to the total energy picture, the Sector studies and assesses individual projects and developments relative to each of the energy sources and in terms of interrelationships with other energy sources. It appraises trends in oil and gas exploration and production, transportation, processing and marketing in Canada and on an international scale, advises other federal departments on oil and gas policy related to their responsibilities, and provides information to industry and the general public on oil and gas developments in Canada and abroad. In the field of uranium, the Sector continues its co-ordination with federal departments concerned with uranium matters, on such subjects as stockpile programs, possibilities of the establishment of uranium-enrichment facilities in Canada and export opportunities. It analyses Canadian and foreign nuclear energy programs and assesses opportunities for nuclear reactors in Canada. In coal energy, it initiates evaluations to determine the extent of Canadian coal reserves and their quality, provides assistance in the form of research and development grants to help improve the quality and utilization of coal, provides advice on production expansion rates compatible with profitability and projected demand in Canadian and foreign markets and undertakes studies on the interrelationships of the quality of coal, world price structures, transportation costs, inter-agency competition and environmental concerns. In electric energy, the Sector is concerned with the production and transmission of electric energy throughout Canada with special emphasis on power-system planning and with requisite consideration to the economic and environmental factors associated with the development and production of electric power. It studies auxiliary systems, such as power-system control, communication, fuel supply and storage relative to power generation and transmission and the development and improvement of electrical equipment and prime movers. It administers and manages the federal interests in mineral resources offshore from Canada's East and West Coasts and in the Hudson Bay region, as well as those federally owned mineral rights in the provinces that become available for disposition. It makes policy recommendations on offshore resources, provides representation and expertise in dealing with interdepartmental, federal-provincial and international offshore matters, and provides for co-ordination between government and industries concerned with the utilization of offshore areas.

**Tax Incentives to the Mineral Industry.\***—Although mineral industry enterprises are subject to federal income tax, there are certain benefits granted to such enterprises under the Income Tax Act which serve as incentives to exploration and development of minerals.

New mining operations based on metallic mineral deposits and most industrial mineral deposits are exempt from income tax for the first three years of operation. The three-year exemption does not apply to oil and gas wells, but does apply to the mining of oil shales and bituminous sand.

\* As at October 1971; at that time, Bill C-259—an Act to implement a reform of the Income Tax Act—was before Parliament. The provisions of that Bill modify substantially the benefits accorded to the mineral industry.

The operators of oil or gas wells or mines may claim, during the full life of the operation, a depletion allowance which is equal to one third of the taxable income. In general, the effect of the percentage depletion allowance is to reduce the tax otherwise payable by one third.

There are special depletion allowances for gold and coal mines. The operator of a gold mine may elect to apply a percentage depletion allowance rate of 40 p.c. or an amount of \$4 per ounce of gold produced as a deduction from taxable income. The deduction for coal is 10 cents for each ton of coal mined in the year.

Non-operators are entitled to a depletion allowance of 25 p.c. of their gross income from wells or most mines.

The right of a mining or petroleum company to claim costs of exploration and development incurred in the search for oil, gas or minerals in Canada as immediate deductions from income from all sources is generally regarded as an important tax benefit.

Prospectors and their financial backers are exempt from income tax on receipts from the sale of a mining property acquired as a result of the prospector's efforts, other than rents, royalties or similar payments.

**Emergency Gold Mining Assistance Act.**—Under this Act, which came into force in 1948 (RSC 1970, c. E-5), financial assistance is provided to marginal gold mines to counteract the effects of increasing costs of production and a fixed price for gold. By enabling gold mines to extend their productive life, the subventions help communities dependent on gold mining to adjust gradually to diminishing support. In 1971, the Act was amended and its application extended to June 30, 1973 (SC 1970-71, c. 12). The amendments resulted in the following changes:—

- (1) A gold mine, other than a placer mine, to qualify for cost assistance had to be in reasonable commercial production in the months immediately preceding Aug. 7, 1970.
- (2) A gold mine, that was not a placer mine, was required to agree in writing to: (a) conduct all future hirings through Canada Manpower Centre, (b) give notice of a mine closure at least four months prior to cessation of operations, and (c) retain, immediately following notice of closure, the Manpower Consultative Service of the Department of Manpower and Immigration to assist in the placement of employees as they are laid off.

The amount of assistance payable to an operator is determined by a formula, and is based on the average cost of production per ounce and the number of ounces produced; it ranges from zero to \$10.27 per oz.t. produced. Gold mines having a cost of production of \$26.50 or less per oz.t. receive no assistance and those having a cost of production of \$45 or more per oz.t. receive the maximum rate of \$10.27 per oz.t.

Under the current formula, the assistance payable to the operator of a gold mine is computed by adding 25 p.c. to the product of two factors—the “rate of assistance” and the number of “assistance ounces”. The number of assistance ounces is two thirds of the total ounces produced and sold to the Royal Canadian Mint by a mine in a calendar year. The rate-of-assistance factor is two thirds of the amount by which the average cost of production exceeds \$26.50. The rate-of-assistance factor is limited to a maximum of \$12.33 which is reached when the average cost of production rises to \$45 per oz.t. of gold produced. The average cost of production is determined by dividing the total allowable costs by the total number of ounces produced in the form of bullion from the mine in a calendar year. Only those ounces of gold that have been sold to the Royal Canadian Mint are eligible for inclusion in the assistance-ounces factor. The cost of production includes mining, milling, smelting, refining, transportation and administration costs. Allowances are made for depreciation, pre-production costs and expenditures on exploration and development on the mine property in accordance with the Regulations.

The amounts paid to operators of gold mines, to Mar. 31, 1971 for the years 1948-70, inclusive, totalled \$288,592,320 on a production of 60,240,260 oz.t. of gold produced and sold in accordance with requirements of the Act. The assistance payable for gold produced



and sold under the Act in the calendar year 1970 was estimated to be \$13,000,000. The average Mint price for gold in Canadian funds was \$37.69 an oz.t. during 1969 but was only \$36.57 in 1970.

In March 1968, the governors of the central banks of seven nations introduced a two-price system for gold which separated transactions in gold among the central banks from private open-market operations. The governors agreed that the existing official reserves would be used only in transfers among monetary authorities at the established price of \$35 (U.S.) an ounce, and that the central banks would neither purchase nor sell gold in private gold markets. The Minister of Finance stated that Canada would support fully the agreements reached by the central bankers. He also stated that there would be no change in the practices applicable to gold producers under the Emergency Gold Mining Assistance Act.

Operators of gold mines were thus offered the alternatives of selling their production to the Royal Canadian Mint at the fixed price of \$35 an oz.t. in United States funds in order to qualify for assistance payments under the Emergency Gold Mining Assistance Act or of selling on the open market at the price determined by supply and demand. It may be noted that the amount of assistance payable is determined on the basis of the cost of production and is not related to the selling price of the gold.

In accordance with the agreement by the central bankers, gold purchased by the Mint is not added to Canada's official reserves but is sold on the open market. The open market price exceeded \$35 (U.S.) from April 1968 to the end of 1969, established a year low of \$34.75 (U.S.) in January 1970, but exceeded \$41 (U.S.) in May. Because only gold mine operators receiving assistance sold their gold to the Mint, the cost of assistance under the Act was effectively reduced by the difference in price at which the Mint bought newly mined gold and the price for which it was sold to open market bidders during this period.

### **Subsection 2.—Provincial Government Aid\***

**Newfoundland.**—The Newfoundland Government, through the Mines Branch of the Department of Mines, Agriculture and Resources, provides several valuable services to those interested or involved in exploration and mining, including: the conduct of a continuing program of mineral assessment designed to encourage development of the mineral resources of the province; the inspection of exploration work carried out on concession areas and the examination of mining operations; the administration of beaches (control of removal of sand and gravel as a conservation measure) and the collection of data relevant to the control of sand removal; the identification of mineral rock specimens submitted by the public and the examination of corresponding occurrences where such is warranted; the dispensing of technical advice, in so far as possible, to those who seek such service (i.e., in hydrological problems and on the availability of quarriable peat moss to be removed by permit); co-operation with the Geological Survey of Canada and other Federal Government agencies; and the preparation and publication of data useful for educational and general informational purposes, including the preparation of mineral and rock sample sets. Geological reports, geophysical maps and compilations of general data pertaining to specific areas are procurable at nominal cost and other information from unclassified files is made available to interested parties. Prospector's or miner's permits are issued by the Mines Branch and mining claims are recorded.

**Nova Scotia.**—Under the provisions of the Mines Act (RSNS 1967, c. 185), the Government of Nova Scotia may assist a mining company or operator in the sinking of shafts, slopes, deeps and winzes and the driving of adits, tunnels, crosscuts, raises and levels. This assistance may take the form of work performed under contract, the payment of bills for materials and labour, or the guarantee of bank loans. Any such work must be approved by the Department of Mines. Mining machinery and equipment to be used in

\* Revised by the respective provincial governments.

searching for or testing and mining minerals may be made available through the Government. Such equipment is under the direct supervision of the Chief Mining Engineer.

The Government of Nova Scotia is also empowered to make any regulations considered necessary for increasing the output of coal. Such regulations cover the appropriation, on payment, of unworked coal lands, the operation of coal mines, and loans or guarantees for loans. Close co-operation is maintained with the Federal Government in carrying out federal regulations made to secure increased production and economical distribution of coal from the mines of the province.

**New Brunswick.**—The Mines Division of the Department of Natural Resources has two Branches. The Mineral Resources Branch administers the disposition of Crown mineral rights including the issuing of prospecting licences, recording of mining claims, issuing of mining licences and leases and other matters pertaining thereto. Detailed and index claim maps are prepared for distribution. The Branch is responsible for general and detailed geological mapping and investigations. Maps and reports are prepared for distribution, mineral and rock specimens are examined for prospectors and preliminary examinations of mineral prospects are made when requested and circumstances warrant. The Mines Branch administers the safety regulations governing the operations under the Mining Act. All mines are regularly inspected, laboratory facilities are maintained and certain equipment used in mines must be approved. The Branch is responsible also for the collection of mining taxes and royalties and the preparation of statistics on mineral production. A Regional Office, located at Bathurst and staffed by geologists and inspectors, serves as a recording office for northeastern New Brunswick, and another at St. George, staffed by a senior geologist, conducts regional work and assists exploration companies and prospectors working in the southwestern area. Claim maps and topographical, geological and aeromagnetic maps are available for perusal and distribution.

**Quebec.**—Through its Director General of Mines, the Department of Natural Resources is responsible for implementing the Mining Act (SQ 1965, c. 34) and the Mining Duties Act (SQ 1965, c. 35). The directorate includes the following three branches: Geological Services, Mining Service and the Mining Research Centre, as well as the Taxation, Mining Conflicts and Registry Divisions.

The *Geological Services Branch* is concerned with geological exploration, mineral deposits, mapping and hydrogeology. It conducts studies on the geological composition of Quebec territory for the development of mineral resources; following yearly expeditions, detailed reports of the findings and geological maps of different regions are made available for the use of interested persons. The Hydrogeology Section conducts studies on and maintains an inventory of underground water. The Gas and Oil Section collects and compiles technical information for the use of private companies seeking hydrocarbons.

The *Mining Service Branch*, consisting of a Mines Service, an Inspection Service and an Engineering Service, controls mining concession grants on Crown lands, including claims registrations, developmental work permits and special permits for the sale or rental of lands for mining development. It ensures that holders of mining rights live up to the conditions of their agreements and inspectors ensure that work in mines, in quarries and in treatment plants is carried out in accordance with safety law and regulations. The Branch undertakes the engineering studies required prior to opening up a new mining district or operation, including the construction of access roads, the building of mining camps or townsites and any regulations pertaining to the use of the land in question.

The function of the *Mining Research Centre* is to assist those interested in prospecting, mining operations or ore treatment by providing technical and scientific services. In addition to chemical, physical, mineralogical and petrographic analyses, the Centre conducts applied research, principally mineralogical, to promote the development of new deposits in Quebec and to assist in the technological advancement of mines and quarries already in operation.

The Taxation Division levies duties on mining operations as stipulated in the Mining Duties Act and the Mining Conflicts Division verifies the existence or the validity of claims as provided for in Part VI of the Mining Act.

To provide for the future development of the mining industry, scholarships are granted to students wishing to follow a career in geology, mining and metallurgical engineering, as well as to students in hydrology or other relevant fields of science (hydro-electricity, hydraulics or meteorology). The Department makes a conscious effort to initiate young students at the secondary or junior college levels into the mining and geological sciences by seconding staff members to camps for young scientists to interest them in these disciplines.

**Ontario.**—The Ontario Department of Mines and Northern Affairs renders a multiplicity of services of direct assistance to the mining industry within the province. The *Geological Branch* carries on a continuing program of geological mapping and investigations and prepares, for the use of the public, detailed reports and maps of the areas studied. In many active areas of the province, resident geologists gather and make available to the public information concerning geological conditions, exploration and development within their respective districts. Geologists specializing in industrial minerals investigate methods of treatment and recovery of such minerals and compile data on the uses, specifications and markets for such products. During the winter months, courses of instruction for prospectors are held in various centres throughout the province.

The *Laboratory Branch* provides assay and analytical services and conducts mineralogical investigations to aid in the discovery and development of mineral deposits. Its services are available to the mining industry and the public at large. The Temiskaming Testing Laboratory, situated at Cobalt, operates a bulk sampling plant and assay laboratory to assist the producers of the area in marketing their silver-cobalt ores.

The *Mining Lands Branch* handles all matters dealing with the recording of mining claims, assessment work, etc., and the preparation of title to mining lands. As a service to the mining public, individual township maps are prepared and kept up to date, showing lands open for staking and recorded and patented claims therein. District Mining Records maintain offices at strategic locations throughout the province.

The *Inspection Branch* administers the operating rules of the Mining Act which call for the regular examination of all operating mines, quarries, sand and gravel pits and certain metallurgical works with a view to ensuring proper conditions of health and safety to the men employed. District offices to serve the local areas are maintained in the major mining centres of the province. Mine rescue stations in the principal mining sections are operated under the supervision of the Branch and all hoisting ropes in use at mines are periodically tested by a Branch-operated cable-testing laboratory.

The *Finance and Administration Branch* includes an Information Section which carries out a regular publicity and information program and maintains a library of films on mining subjects which are available for free loan to the public. Each year, displays pertaining to mining are prepared and presented at exhibitions throughout the province. A new section has recently been set up within the Branch consisting of two economists and a statistician, the function of which is to provide projections of Ontario's mineral economy for the industry. The Publications Office of the Branch is responsible for distribution of all departmental literature and maps.

Since 1951 the Department has been engaged in a road-building program to give access to mineralized areas and open them for full development. In 1955 this became an inter-departmental project with other interested departments participating through an interdepartmental committee of Ministers which decides on priorities and locations. Actual construction is carried out by the Department of Highways.

The *Northern Affairs Branch* has a function that is unique in government. In effect, it serves as liaison between the people of northern Ontario and the government and its various branches in Toronto. Such a link was found to be necessary because of the distance



separating many parts of the north and the seat of government. The Branch, with headquarters in Toronto, regional offices at Sudbury, Timmins and Thunder Bay and 25 Northern Affairs offices strategically located throughout the North as well as a number of satellite offices, provides instant communication among the offices through which government-oriented problems of northerners can usually be resolved quickly and easily by direct communication with the department and branch concerned.

**Manitoba.**—The Mines Branch of the Manitoba Department of Mines, Resources and Environmental Management offers five main services to assist the mineral industries: maintenance of records and field inspections required for the granting and retention of titles to mineral locations; compilation of geological data pertinent to mineral occurrences, and recording of new information by geological mapping; environmental control relevant to mining and quarrying operations, enforcement of mine safety regulations, training of mine rescue crews and promotion of improvements in underground working conditions; environmental control relevant to the drilling, abandonment and reworking of oil wells, and maintenance of technical records of all exploration and production wells; and operation of a chemical and assay laboratory to assist prospectors and geologists in the evaluation of mineral occurrences and the classification of rocks and minerals. The Mineral Exploration Assistance Act (1966) provides for limited financial grants to prospectors who have carried out previously agreed exploration programs at specified locations; such grants are repayable if the program leads to a profitable mining operation.

**Saskatchewan.**—The *Mineral Lands Branch* of the Department of Mineral Resources is responsible for making disposition of all Crown minerals and maintains records respecting areas let out by lease, permit or claim. Recording offices, located at Regina, La Ronge, Uranium City and Creighton, assist the public in determining the lands available and accept applications.

Officers of the *Mines Inspection Branch*, under the authority of the Mines Regulation Act, make regular examinations of all mines to ensure proper conditions for the health and safety of the men employed. Safety education, particularly in the form of first aid and mine rescue instruction, is also a part of the work of this Branch. All Branch officers are stationed at the Regina headquarters.

The Precambrian Geology Division of the *Geological Sciences Branch* conducts geological surveys in the shield areas of the province and publishes maps and reports for the information and guidance of the industry. Resident geologists are maintained at Uranium City and La Ronge and at the latter centre a laboratory provides for the storage and examination of core and samples. The Division processes exploration data and assessment work to be made available for inspection by the industry.

**Alberta.**—Alberta Government assistance to the mining industry is diversified in character. The Mines Division of the Department of Mines and Minerals regulates coal mines and quarries and maintains standards of safety by inspection and certification of workers. The Workmen's Compensation Board also maintains safety standards and pays the cost of training mine rescue crews. The oil and gas industries are served in a similar way by the Energy Resources Conservation Board. Its regulatory measures, however, are also concerned with preventing the waste of oil and gas resources and with giving each owner of oil and gas rights the opportunity of obtaining a fair share of production. This Board compiles periodic reports and annual records which are of invaluable assistance in oil development in Alberta. The mining industry is also served by the Research Council of Alberta which has made geological surveys of most of the province and has carried forward projects concerned with the uses and development of minerals. The Council has studied the occurrence, uses and analyses of Alberta coals and their particular chemical and physical properties, the use of coals in the generation of power, and the upgrading and cleaning of coal, and has also studied briquetting, blending, abrasion loss, shatter and crushing strength,

asphalt binders and dust-proofing of coal. Studies have been made of glass sands, salt, fertilizers, cement manufacture and brick and tile manufacture. (See also p. 472.)

The province from time to time has had commissions examine various aspects of the mining industry when it has considered that their findings would be of assistance in developing such industries. The province, together with the Canadian Association of Oil Well Drilling Contractors and the Canadian Petroleum Association, maintains a detailed supervisory and safety training program concerned with the drilling of oil and gas wells. Of assistance also to mining companies and oil companies are the special reductions provided for in the Alberta Income Tax Act. These follow the parallel provisions in the federal Income Tax Act.

**British Columbia.**—The Department of Mines and Petroleum Resources of British Columbia provides the following services: detailed geological mapping as a supplement to the work of the Geological Survey of Canada; assistance to the prospector in the field by departmental engineers and geologists; grub-stakes, limited to a maximum of \$800, for prospectors; assistance in the construction of mining roads and trails; and inspection of mines to ensure safe operating conditions.

### Section 3.—Mining and Petroleum Legislation

**Federal and Departmental Jurisdictions.**—Mineral rights vested in the Crown in right of Canada include those situated in the Yukon and Northwest Territories and offshore underlying Canada's continental margins, as well as those underlying certain federally owned lands within the provinces.

The Supreme Court of Canada in its Opinion of November 1967 stated that, as between Canada and the Province of British Columbia, Canada has proprietary rights in and legislative jurisdiction over "lands, including the mineral and other natural resources, of the sea bed and subsoil seaward from the ordinary low-water mark on the coast of the mainland and the several islands of British Columbia, outside the harbours, bays, estuaries and other similar inland waters, to the outer limit of the territorial sea of Canada, as defined in the Territorial Sea and Fishing Zones Act...". The Court also stated that the Federal Government has legislative jurisdiction "in respect of the mineral and other natural resources of the sea bed and subsoil beyond that part of the territorial sea of Canada... to a depth of 200 meters or, beyond that limit, to where the depth of the superjacent waters admits of the exploitation of the mineral and other natural resources of the said areas...".

The Department of Energy, Mines and Resources, through the Resource Management and Conservation Branch, is responsible for the administration and enforcement of legislation and regulations relating to mineral resources offshore from Canada's East and West Coasts and in the Hudson Bay and Hudson Strait regions, as well as with respect to the federally owned mineral rights in the provinces mentioned above. The Department of Indian Affairs and Northern Development, through the Northern Economic Development Branch, is similarly responsible concerning mineral rights in the Yukon and Northwest Territories and underlying Canada's high-Arctic offshore regions.

Mineral rights of Indian reserves in the provinces are also vested in the Crown in the right of Canada and are administered by the Indian-Eskimo Economic Development Branch of the Department of Indian Affairs and Northern Development. The rights to a reserve may be taken up only after the Indian band has given approval for development through a referendum vote. The minerals are then administered under the Indian Oil and Gas Regulations or the Indian Mining Regulations, except in British Columbia where mining rights must be acquired under provincial statutes and the B.C. Indian Reserves Mineral Resources Agreement of 1943. The Indian Oil and Gas Regulations provide for disposal of rights by public tender in the form of permit or lease parcels. The Indian Mining Regulations, on the other hand, provide for disposal based on terms negotiated with the Indian band council. In this manner the Indian councils are assuming a greater

share of responsibility in the management of their mineral resources. Officers of the Department of Indian Affairs and Northern Development are advisers to the Indian councils on mineral matters and are responsible for the administration and enforcement of relevant regulations.

**Federal Mining Laws and Regulations.**—Mining exploration is carried out in the Yukon Territory in accordance with the provisions of the Yukon Quartz Mining Act and the Yukon Placer Mining Act; in the Northwest Territories, including Arctic coastal waters, operations are governed by the Canada Mining Regulations 1961, as amended. There are also the Territorial Dredging Regulations, Territorial Coal Regulations and Territorial Quarrying Regulations common to both territories. In the Yukon Territory, mining rights may be acquired by staking claims under the appropriate Acts and Regulations. A one-year lease may be obtained to prospect for the purposes of placer mining, renewable for two additional periods of one year each; a 21-year lease, renewable for a like period, may be obtained under the Yukon Quartz Mining Act.

Under the Canada Mining Regulations, a prospector's licence is required. Staked claims must be converted to lease or relinquished within 10 years. In certain areas, a system of exploration by permit over large areas is allowed. Any individual over 18 years of age or any joint-stock company incorporated or licensed to do business in Canada may hold a prospector's licence. No lease will be granted to an individual unless the Minister of the Department involved is satisfied that the applicant is a Canadian citizen and will be the beneficial owner of any interest acquired under such lease; no lease will be granted to a corporation unless such corporation is incorporated in Canada and unless the Minister is satisfied that at least 50 p.c. of the issued shares of the corporation are owned by Canadian citizens or that the shares of the corporation are listed on a recognized Canadian stock exchange and that Canadians will have the opportunity of participating in the financing and ownership of the corporation. Any new mine beginning production after the Canada Mining Regulations came into force in 1961 will not be required to pay royalties for a period of 36 months, starting from the day the mine comes into production. Production date is established as the date determined under the provisions of the Income Tax Act.

An exploration assistance fund for petroleum and other minerals in the Yukon and Northwest Territories was established by the Federal Government in 1966. Initially limited to \$3,000,000 a year, the fund may provide 40 p.c. of the cost of approved exploration programs. Assistance is available only to Canadian citizens or companies incorporated in Canada. Named the Northern Mineral Exploration Program, it is designed to encourage investment from additional Canadian sources previously not attracted to investment in northern exploration operations.

**Oil and Gas Legislation.**—Oil and gas exploration and development in the Yukon and Northwest Territories and Canadian offshore areas are governed by the Territorial Lands Act, the Public Lands Grants Act, the Oil and Gas Production and Conservation Act and regulations pursuant thereto. Both the Canada Oil and Gas Land Regulations and the Oil and Gas Drilling and Production Regulations were under review in late 1971. The former regulations are being amended; the latter regulations may be amended with respect to 'onland' areas, but new operational and conservation regulations are being drafted for the 'offshore', pursuant to the Oil and Gas Production and Conservation Act.

An oil and gas exploration permit may be granted either upon application, or, in respect of land previously held under permit, by sale through public tender for three, four or six years, depending upon latitude and region. A permit is renewable for up to six one-year periods, with provisions that the appropriate Minister may grant additional renewals under special terms and conditions. The permittee is obligated to undertake exploratory work in an amount no less than 5 cents per acre for the first 18 to 36 months increasing to 15 to 20 cents per acre for subsequent periods of the primary term. Work obligations for each one-year renewal period increase up to 50 cents per acre. The permittee must post a



guarantee deposit in the form of cash, bonds, or promissory notes prior to each work period. These deposits are returned upon receipt of satisfactory evidence that exploratory work has been performed, and are forfeited to the Crown in the event the permittee fails to fulfil the work obligations. Oil and gas leases may be selected in accordance with prescribed guidelines for up to 50 p.c. of a permit area, with that portion not converted to lease reverting to the Crown.

An oil and gas exploration permit may be issued to any individual over 21 years of age or to any joint-stock company incorporated or licensed to do business in Canada, or incorporated in any province of Canada. Extra-territorial companies applying for permits in the Northwest Territories must be registered under the Companies Ordinance of the Northwest Territories. An oil and gas lease may be granted to a permittee where the Minister of the Department involved is satisfied that the applicant is a Canadian citizen over 21 years of age and will be the beneficial owner of the interest granted, or to a corporation where such corporation is incorporated in Canada, and where the Minister is satisfied that at least 50 p.c. of the issued shares of the corporation are beneficially owned by Canadian citizens or that the shares of the corporation are listed on a recognized Canadian stock exchange and that Canadians will have an opportunity of participating in the financing and ownership of the corporation, or the operation is wholly owned by a corporation that meets either of these two requirements.

The Oil and Gas Production and Conservation Act provides for comprehensive control over all oil and gas operations in the Territories and offshore regions including such matters as safety, the prevention of waste and pollution, production, conservation, storage, transmission, and unitization of oil and gas fields. An Oil and Gas Committee of five members appointed by the Governor in Council is empowered to hold enquiries, to hear appeals, and to make orders in connection therewith.

Federally owned mineral rights within the provinces that are available for development (except those in Indian lands) are administered by the Department of Energy, Mines and Resources under regulations promulgated pursuant to the Public Lands Grants Act.

**Provincial Mining Laws and Regulations.\***—In general, all Crown mineral lands lying within the boundaries of the several provinces (with the exception of those within Indian reserves, national parks and other lands which are under the jurisdiction of the Federal Government) are administered by the respective provincial governments. The exception is Quebec where all mineral lands except those granted to individuals in the townships prior to 1880 are administered by the province; also, mining rights on federal lands in Quebec are administered by the province.

The granting of land in any province except Ontario no longer automatically carries with it mining rights upon or under such land. In Ontario, mineral rights are expressly reserved if they are not to be included. In Nova Scotia, no mineral rights belong to the owner of the land except those pertaining to gypsum, agricultural limestone and building materials, and the Lieutenant-Governor in Council may declare deposits of either limestone or building materials to be minerals. Such declaration is to be based on economic value or to serve the public interest. In such case, the initial privilege of acquiring the declared minerals lies with the owner of the surface rights who must then conform with the requirements of the Mines Act. In Newfoundland, mineral and quarry rights are expressly reserved. Some early grants in British Columbia, Alberta, Saskatchewan, Manitoba, New Brunswick, Quebec and Newfoundland also included certain mineral rights. Otherwise, mining rights must be obtained separately by lease or grant from the provincial authority administering the mining laws and regulations. Mining activities may be classified as placer, general minerals (or veined minerals and bedded minerals), fuels (coal, petroleum and gas) and quarrying. Provincial mining regulations under these divisions are summarized in the following paragraphs.

\* Approved by the respective provincial governments.

*Placer.*—In most provinces in which placer deposits occur there are regulations defining the size of placer holdings, the terms under which they may be acquired and held, and the royalties to be paid.

*General Minerals.*—These minerals are sometimes described as quartz, lode, or minerals in place. With the exception of British Columbia, the most elaborate laws and regulations apply in this division. In all provinces except Alberta and Saskatchewan, a prospector's or miner's licence, valid for one year, must be obtained to search for mineral deposits, the licence being general in some areas but limited in others; a claim of promising ground of a specified size may then be staked. In Manitoba and British Columbia a licence is required only for staking and any number of dispositions may be staked under one licence. A claim must be recorded within a time limit and payment of recording fees made, except in Quebec where no fees are required. Work to a specified value per annum must be performed upon the claim for a period of up to ten years except in Quebec where a development licence may be renewed on a yearly basis; also in Manitoba and Saskatchewan there is no work commitment in the first year of the claim. There is no time limit in British Columbia but \$500 assessment work, of which a survey may represent two fifths, must be performed and recorded before a lease may be obtained. In Quebec, a specified number of man-hours of work must be performed and the excess may be carried forward for renewal of licence. The taxation applied most frequently is a percentage of net profits of producing mines or royalties. In Saskatchewan, subsurface mineral regulations covering non-metallics stipulate the size and type of dispositions that may be made in order to maintain the disposition in good standing, provide for fees, rentals and royalties, and set out generally the rights and obligations of the disposition holder.

*Fuels.*—In provinces where coal occurs, the size of holdings is laid down together with the conditions of work and rental under which they may be held. In Quebec, the search for and development of petroleum and natural gas may be carried out under a prospecting or search permit followed by a working lease; the search permit covers a period of five years and an acreage of not over 60,000 acres, whereas the lease extends over a 20-year period and an acreage not over half the acreage of the permit. In Nova Scotia, mining rights to certain minerals, including petroleum, occurring under differing conditions may be held by different licensees. Provision is sometimes made for royalties. Acts or regulations govern methods of production. In the search for petroleum and natural gas, an exploration permit or reservation is usually required; however, in Manitoba, Saskatchewan, Alberta and British Columbia leases usually follow the exploration reservation whether or not any discovery of oil or gas is made. In Alberta, exploration costs are applicable in part on the first year's lease rental, in Manitoba they may be applied to the lease rental for a period of up to three years and, in British Columbia and Saskatchewan, credit is given for up to 24 months' rental, having regard to the amount of excess credit established. In other provinces, the discovery of oil or gas is usually prerequisite to obtaining a lease or grant of a limited area, subject to carrying out drilling obligations and paying a rental, a fee, or a royalty on production.

*Quarrying.*—Regulations under this heading define the size of holdings and the terms of lease or grant. In Nova Scotia, sand deposits of a quality suitable for uses other than building purposes and limestone deposits of metallurgical grade belong to the Crown; gypsum quarries belong to the owner of the property. Under the New Brunswick Quarriable Substances Act, 1968, quarriable substances (ordinary stone, building and construction stone, sand, gravel, peat and peat moss) are vested in the owner of the land in or on which they lie; the Minister with the approval of the Lieutenant-Governor in Council may designate a shore area lying outside Crown land to be subject to the Act; and no person shall take or remove or cause to be taken or removed more than one half cubic yard of a quarriable substance from Crown land or a designated shore area without obtaining a permit or lease. On Quebec public lands and on those granted to individuals after Jan. 1, 1966, the stone, sand and gravel, like other building materials, belong to the Crown; quarries

located on land granted to individuals prior to 1966 remain in the possession of the owners of the surface; the right to exploit all building materials except sand and gravel may be acquired by ordinary staking-out and the right to work sand and gravel beds is set by regulation. In Saskatchewan, sand and gravel on the surface and all sand and gravel obtainable by stripping off the overburden or other surface operation belong to the owner of the surface of the land. In Alberta, sand, gravel, clay and marl recovered by excavating from the surface belong to the owner of the surface of the land.

Copies of mining legislation including regulations and other details may be obtained from the provincial authorities concerned.

## Section 4.—World Production of Certain Metallic Minerals and Fuels

Table 33 shows the production of certain metallic minerals and fuels in the different countries of the world for the year 1969. These figures are taken from the *United Nations Statistical Yearbook 1970* which presents production figures for a much more extensive list of mining and quarrying industries.

### 33.—World Production of Certain Metallic Minerals and Fuels, 1969

NOTE.—Where dashes occur throughout this table they indicate that no figures were given in the *United Nations Statistical Yearbook* either because there was no production or because the quantity was not available.

Country	Crude Petroleum	Copper	Nickel	Iron Ore	Zinc	Natural Gas	Asbestos	Gold
	'000 metric tons	'000 metric tons	metric tons	'000 metric tons	'000 metric tons	'000,000 cu. metres	'000 metric tons	kilogrammes
Afghanistan.....	—	—	—	—	—	2,029	—	—
Albania.....	1,147	6.0	—	—	—	—	—	—
Algeria.....	43,841	0.6	—	1,599	21.6	2,985	—	—
Angola.....	2,458	0.5	—	3,396	—	—	—	—
Argentina.....	18,096	—	—	132	27.2	5,366	—	—
Australia.....	2,012	131.3	11,067	24,861	507.1	265	0.7	21,846
Austria.....	2,758	2.4	—	1,288	14.2	1,483	—	—
Bahrain.....	3,798	—	—	—	—	309	—	—
Barbados.....	—	—	—	—	—	3	—	—
Belgium.....	—	—	—	28	—	67	—	—
Bolivia.....	1,873	8.0 <sup>1</sup>	—	—	26.5 <sup>1</sup>	111	—	—
Brazil.....	8,360	—	—	—	—	1,248	—	—
Britain.....	77	—	—	3,443	—	5,251	—	—
Brunei.....	6,107	—	—	—	—	191	—	—
Bulgaria.....	325	39.3	—	881	77.0	525	2.8	—
Burma.....	746	0.1	26	1	4.7	—	—	—
Canada.....	55,487	506.4	193,525	22,318	1,194.2	62,378	1,448.3	75,692
Chile.....	1,740	669.1	—	7,161	1.5	2,264	—	1,827
China, People's Republic of.....	20,000	100.0	—	—	100.0	—	160.0	—
Colombia.....	10,689	—	—	352	—	1,338	—	6,808
Congo, Democratic Republic of.....	—	356.9	—	—	99.9	—	—	5,330
Congo, People's Republic of.....	24	—	—	—	4.7	—	—	121
Cuba.....	91	—	—	—	—	—	—	—
Cyprus.....	—	19.2 <sup>1</sup>	—	—	—	—	21.7	—
Czechoslovakia.....	210	4.6	—	442	—	1,180	—	—
Denmark.....	—	—	—	11	—	—	—	—
Ecuador.....	207	—	—	—	—	14	—	229
Finland.....	—	32.9	4,819	393	77.3	—	14.0	—
France.....	2,499	—	—	18,013	20.1	6,506	—	1,500
Gabon.....	5,027	—	—	—	—	24	—	—
German Democratic Republic.....	—	40.0	—	225	10.0	—	—	—
Germany, Federal Republic of.....	7,876	1.4	—	1,959	116.5	9,373	—	5,990
Ghana.....	—	—	—	—	—	—	—	22,013
Greece.....	—	—	—	200	9.3	—	—	—
Guatemala.....	—	—	—	—	0.9 <sup>1</sup>	—	—	—
Haiti.....	—	1.8	—	—	—	—	—	—
Honduras.....	—	—	—	—	8.4 <sup>1</sup>	—	—	118
Hong Kong.....	—	—	—	88	—	—	—	—

<sup>1</sup> Exports.



## 33.—World Production of Certain Metallic Minerals and Fuels, 1969—concluded

Country	Crude Petroleum	Copper	Nickel	Iron Ore	Zinc	Natural Gas	Asbestos	Gold
	'000 metric tons	'000 metric tons	metric tons	'000 metric tons	'000 metric tons	'000,000 cu. metres	'000 metric tons	kilo-grammes
Hungary.....	1,754	0.3	—	168	4.7	3,235	—	—
India.....	6,723	10.4	—	18,039	7.4	519	9.6	3,405
Indonesia.....	36,620	—	7,000	—	—	—	—	257
Iran.....	166,030	12.0	—	1	22.5	2,781	—	—
Iraq.....	74,485	—	—	—	—	882	—	—
Ireland.....	—	6.3	—	—	105.0	—	—	—
Israel.....	2,599	10.7	—	—	—	141	—	—
Italy.....	1,520	2.6	—	367	131.9	11,959	112.5	—
Japan.....	788	121.1	—	1,068	269.4	2,461	21.0	21,071
Kenya.....	—	0.1	—	—	—	—	—	557
Korea, Democratic People's Republic of.....	—	12.0	—	—	125.0	—	—	—
Korea, Republic of.....	—	1.3	—	355	20.6	—	5.9	1,445
Kuwait.....	129,548	—	—	—	—	3,660	—	—
Liberia.....	—	—	—	14,786	—	—	—	—
Libya.....	149,702	—	—	—	—	—	—	—
Luxembourg.....	—	—	—	1,751	—	—	—	—
Malaysia—								
East (Sarawak).....	447	—	—	—	—	—	—	—
West.....	—	—	—	2,931	—	—	—	—
Mauritania.....	—	—	—	5,497 <sup>1</sup>	—	—	—	—
Mexico.....	21,415	66.2	—	2,097	253.4	17,218	—	5,618
Mongolia.....	4	—	—	—	—	—	—	—
Morocco.....	68	2.8	280	412	32.4	42	—	—
Mozambique.....	—	—	—	—	—	—	0.8	—
Muscat and Oman.....	16,368	—	—	—	—	—	—	—
Namibia.....	—	—	—	—	70.0	—	—	—
Netherlands.....	2,020	—	—	—	—	21,870	—	—
Neutral Zone (jointly shared by Saudi Arabia and Kuwait).....	23,864	—	—	—	—	210	—	—
New Caledonia.....	—	—	117,000	—	—	—	—	—
New Zealand.....	—	—	—	1	—	—	—	323
Nicaragua.....	—	4.2	—	—	—	—	—	3,328
Nigeria.....	27,001	—	—	—	—	64	—	—
Norway.....	—	20.8	—	2,520	11.2	—	—	—
Pakistan.....	467	—	—	—	—	2,814	—	—
Peru.....	3,555	206.1	—	5,477	314.8	494	—	2,865
Philippines.....	—	131.4	—	991	3.3	—	—	17,765
Poland.....	439	28.1	1,500	774	229.0	3,922	—	—
Portugal.....	—	4.1	—	80	1.1	—	—	563
Qatar.....	17,341	—	—	—	—	—	—	—
Romania.....	13,246	—	—	834	—	23,873	—	—
Saudi Arabia.....	148,846	—	—	—	—	—	—	—
Sierra Leone.....	—	—	—	1,800	—	—	—	—
South Africa.....	—	125.6	5,500	5,594	—	—	258.2	969,341
Southern Rhodesia.....	—	24.0	8,000	—	—	—	—	—
Spain.....	190	10.6	—	3,267	84.3	1	—	—
Swaziland.....	—	—	—	1,469	—	—	36.5	—
Sweden.....	—	25.2	—	20,691	90.1	—	—	1,316
Syria.....	2,289 <sup>1</sup>	—	—	—	—	—	—	—
Taiwan.....	82	2.3	—	—	—	893	3.1	828
Tanzania, United Republic of.....	—	—	—	—	—	—	—	498
Thailand.....	2	—	—	289	0.7	—	—	—
Trinidad and Tobago.....	8,126	—	—	—	—	1,605	—	—
Trucial Oman.....	29,267	—	—	—	—	—	—	—
Tunisia.....	3,703	—	—	615	9.2	9	—	—
Turkey.....	3,599	26.7	—	1,411	18.8	—	5.2	—
Uganda.....	—	16.5	—	—	—	—	—	—
Union of Soviet Socialist Republics.....	328,299	900.0	105,000	100,985	610.0	181,121	1,000.0	—
United Arab Republic.....	12,963	—	—	230	—	71	—	—
United States.....	455,656	1,401.2	17,759	52,513	501.8	586,112	114.2	53,400
Venezuela.....	188,128	—	—	12,416	—	7,980	—	593
Yugoslavia.....	2,699	81.7	—	1,051	96.7	730	11.5	2,819
Zambia.....	—	719.5	—	—	68.2	—	—	282

<sup>1</sup> Exports.

# CHAPTER XIII.—FORESTRY, FISHERIES, FURS AND WILDLIFE

## CONSPECTUS

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*The interpretation of the symbols used in the tables throughout the Year Book will be found on p. vii of this volume.*

## PART I.—FORESTRY\*

Canada's extensive forests have been an invaluable asset to the country and its people since the earliest days of settlement. The productive portion of these forests has poured increasing wealth into the stream of national income, contributing to the economy of the country as the producer of raw materials for industry and as the source of livelihood for hundreds of thousands of persons. Perhaps in no other country is the national wealth so dependent upon its forest resources and the success of its forest industries as in Canada.

The 1969 forest harvest of some 4,304,000,000 cu. feet of roundwood supports a highly complex and diversified domestic and export industry. The forest industries (which include the logging industry, the wood industries and the paper and allied industries) provide about 265,000 man-years of employment and pay out more than \$1,808,000,000 annually in salaries and wages. In addition, a considerable number of people derive part of their income from farm woodlot operations, etc. The forests support a large number of sawmills and wood-using plants which in many cases are located in small towns and villages and contribute appreciably to the local economies. The sale of forest products abroad represents about one fifth of the value of Canada's export trade.

The predominant part played by the pulp and paper, lumber, and other forest products industries in the development of the country has, in the past, resulted in a widespread

\* Sections of this Part that deal with forest resources and depletion and the federal forestry program were revised by the Canadian Forestry Service of the Department of the Environment, Ottawa. Provincial forestry programs were prepared by the forestry officials of the respective provincial governments. Sections dealing with forest and allied industries, except as otherwise noted, were revised in the Forestry Section, Manufacturing and Primary Industries Division, Statistics Canada.

tendency to evaluate the forest in terms of timber alone. There is now a growing realization of the value of the forest in assuring an adequate supply of good-quality water, in providing for sport and recreation, in guarding against erosion, and in maintaining a habitat for wildlife. The increasing recognition of these forest values is fostering a broader and more realistic concept of forestry.

The Canadian forest industry as a whole recorded a substantial increase in productivity over the years 1961-69 inclusive, the total estimated "value added" (value of shipments less cost of materials and fuel) advancing from \$2,000,000,000 to \$3,400,000,000 in 1969.

During the period, roundwood production moved up 36 p.c. from 3,175,000,000 to 4,304,000,000 cu. feet. The increase was more than accounted for by roundwood produced for industrial purposes, since that produced for non-industrial purposes, such as fuelwood and wood for charcoal, declined. Lumber shipments rose from about 8,216,000 to 11,000,000 M ft. b.m. In 1969, British Columbia sawmills accounted for about 69 p.c. of all shipments of lumber in Canada and more than 70 p.c. of it was exported, mainly to the United States. The production of wood pulp also rose substantially, increasing 55 p.c. to nearly 18,600,000 tons in 1969. Although the most important component of this total continued to be groundwood pulp, 8,030,000 tons of which were produced primarily in Ontario, Quebec and the Atlantic Provinces, output of sulphate pulp increased by 157 p.c. over the period to 6,950,000 tons. British Columbia produced most of the sulphate pulp and it was in British Columbia, too, that the largest part of the increase in pulp output occurred. Pulp exports over the period increased from 24 p.c. to 31 p.c. of total production, about 70 p.c. going to the United States.

Production of basic paper and paperboard also rose over the 1961-69 period, increasing 41 p.c. to reach 12,093,000 tons. About 71 p.c. of the 1969 total came from Ontario and Quebec and 15 p.c. from British Columbia. Newsprint, made chiefly in Ontario and Quebec, is the most important paper commodity manufactured in Canada, followed in order by paperboard and book and writing papers. In 1969, pulp and paper exports made up 14 p.c. of the value of all Canadian exports and, once again, the United States was the principal market for these commodities.

The value of factory shipments from veneer and plywood mills was 110 p.c. higher in 1969 than in 1961. In the earlier year, about 60 p.c. of the value of output (\$129,300,000) was accounted for by British Columbia Douglas-fir veneer and plywood but by 1969 this proportion had dropped to 48 p.c. On the other hand, plywood manufactured from other British Columbia softwoods increased. Hardwood veneer and plywood made primarily in Ontario and Quebec from poplar, birch and maple accounted for 36 p.c. of the value of all factory shipments in 1961 and for 29 p.c. in 1969. Of the total value of exports of veneer and plywood, amounting to \$80,000,000 in 1969, Douglas-fir plywood accounted for over \$43,000,000, about 70 p.c. of it going to Britain.

## Section 1.—Forest Resources

**Forest Regions.\***—The forests of Canada cover a vast area in the north temperate climatic zone but wide variations in physiographic, soil and climatic conditions cause marked differences in their character; hence, eight fairly well-defined forest regions may be recognized. These regions and their relative sizes are as follows:—

<i>Region</i>	<i>Percentage of Forest Area</i>	<i>Region</i>	<i>Percentage of Forest Area</i>
Boreal.....	82.1	Acadian.....	2.0
Great Lakes-St. Lawrence..	6.5	Columbia.....	0.8
Subalpine.....	3.7	Deciduous.....	0.4
Montane.....	2.3		
Coast.....	2.2	TOTAL.....	100.0

\* A more detailed discussion of forest regions is given in Bulletin 123, *Forest Regions of Canada*, published by the Canadian Forestry Service, Department of the Environment, Ottawa.



*Boreal Forest Region.*—This Region comprises the greater part of the forested area of Canada. It forms a continuous belt from Newfoundland and the Labrador coast westward to the Rocky Mountains and northwestward to Alaska. White Spruce and Black Spruce are characteristic species; other prominent conifers are Tamarack which generally ranges throughout, Balsam Fir and Jack Pine in the eastern and central portions, and Alpine Fir and Lodgepole Pine in the western and northwestern parts. Although the Boreal forests are primarily coniferous, there is a general admixture of deciduous trees such as White Birch and poplar; these are important in the central and south-central portions, particularly along the edge of the prairie. In turn, the proportion of spruce and larch increases to the north and, with the more rigorous climate, the close forest gives way to an open lichen-woodland which finally changes into tundra. In the eastern section, along the southern border of the Region, there is a considerable intermixture of species from the Great Lakes-St. Lawrence forest, such as Eastern White Pine, Red Pine, Yellow Birch, Sugar Maple, Black Ash and Eastern White Cedar.

*Great Lakes-St. Lawrence Forest Region.*—Extending inland from the edges of the Great Lakes and the St. Lawrence River lies a forest of a very mixed nature which is characterized by Eastern White Pine, Red Pine, Eastern Hemlock and Yellow Birch. With these are associated certain dominant broadleaved species common to the Deciduous Forest Region, including Sugar Maple, Red Maple, Red Oak, Basswood and White Elm. Other species with wide ranges are the Eastern White Cedar and Largetooth Aspen and, to a lesser extent, Beech, White Oak, Butternut and White Ash. Boreal species such as White Spruce, Black Spruce, Balsam Fir, Jack Pine, poplars, and White Birch are intermixed, and Red Spruce is abundant in certain central and eastern portions. This Region extends in a westward direction into southeastern Manitoba but does not include the area north of Lake Superior.

*Subalpine Forest Region.*—This is a coniferous forest located on the mountain uplands of Alberta and British Columbia, from the Rocky Mountain range through the interior of British Columbia to the Pacific Coast inlets. The characteristic species are Engelmann Spruce, Alpine Fir and Lodgepole Pine. There is a close relationship between the Subalpine Forest Region and the Boreal Forest Region, which also shares Black Spruce, White Spruce and Trembling Aspen. There is also some penetration of Interior Douglas-fir from the Montane forest, and Western Hemlock, Western Red Cedar and Amabilis Fir from the coastal forests. Other species are Western Larch, Whitebark Pine, Limber Pine and, on the Coast Mountains, Yellow Cypress and Mountain Hemlock.

*Montane Forest Region.*—The Region occupies a large part of the interior uplands of British Columbia, as well as a part of the Kootenay Valley and a small area on the east side of the Rocky Mountains. It is a northern extension of the typical forest of much of the western mountain system in the United States, and comes in contact with the Coast, Columbia, and Subalpine Forest Regions. Ponderosa Pine is a characteristic species of the southern portions. Interior Douglas-fir is found throughout, but more particularly in the central and southern parts; Lodgepole Pine and Trembling Aspen are generally present, the latter being particularly well represented in the north-central portions. Englemann Spruce and Alpine Fir from the Subalpine Forest Region, together with White Birch, are important constituents in the northern parts. White Spruce, although primarily Boreal in affinity, also grows here. Extensive prairie communities of bunch-grasses and herbs are found in many of the river valleys.

*Coast Forest Region.*—This Region is part of the Pacific Coast forest of North America. Essentially coniferous, it consists principally of Western Red Cedar and Western Hemlock, with Sitka Spruce abundant in the north and Douglas-fir in the south. Amabilis Fir and Yellow Cypress are represented throughout the Region and, together with Mountain Hemlock and Alpine Fir, are common at the higher altitudes. Western White Pine is found in the southern parts, while Western Yew is in widely scattered groups. Deciduous trees, such as Black Cottonwood, Red Alder and Bigleaf Maple, have a limited distribution.

*Sorting logs at Port Alberni, B.C.*

George Hunter



*Turbo Beaver dropping fire retardant.*

*A tree harvester at work in  
a spruce forest.*



*A wildland tree planter  
disturbs the soil, thus pro-  
moting better survival and  
growth for the young trees.*







Arbutus and Garry Oak grow only on the southeast coast of Vancouver Island, the adjacent islands and mainland. The Arbutus is a broadleaved evergreen. Both are species whose centres of population lie southward in the United States.

*Acadian Forest Region.*—Over the greater part of the Maritime Provinces (excluding Newfoundland) there is a forest closely related to the Great Lakes-St. Lawrence forest and, to a lesser extent, to the Boreal forest. Red Spruce is a characteristic though not exclusive species, and associated with it are Balsam Fir, Yellow Birch and Sugar Maple, with some Red Pine, Eastern White Pine and Eastern Hemlock. Beech was formerly a more important forest constituent than at present, but beech bark disease has drastically reduced Beech representation in Nova Scotia, Prince Edward Island and southern New Brunswick. Other species of wide distribution are White Spruce, Black Spruce, Red Oak, White Elm, Black Ash, Red Maple, White Birch, Grey Birch and poplars. Eastern White Cedar, although present in New Brunswick, is extremely rare elsewhere and Jack Pine is apparently absent from the upper St. John Valley and the western half of Nova Scotia.

*Columbia Forest Region.*—A large part of the Kootenay Valley, the upper valleys of the Thompson and Fraser Rivers and the Quesnel Lake area of British Columbia contain a coniferous forest, called the Columbia Forest Region, which closely resembles the Coast Forest Region. Western Red Cedar and Western Hemlock are the characteristic species in this interior "wet belt". Associated trees are the Interior Douglas-fir which has general distribution and, in the southern parts, Western White Pine, Western Larch, Grand Fir and Western Yew. Engelmann Spruce from the Subalpine Forest Region is important in the upper Fraser Valley and is found to some extent at the upper levels of the forest in the remainder of the Region. At lower elevations in the west and in parts of the Kootenay Valley, the forest merges into the Montane Forest Region and in a few places into prairie grassland.

*Deciduous Forest Region.*—A small portion of the deciduous forest, which is widespread in the United States, extends into southwestern Ontario between Lakes Huron, Erie and Ontario. Here, with the deciduous trees common to the Great Lakes-St. Lawrence Forest Region, such as Sugar Maple, Beech, White Elm, Basswood, Red Ash, White Oak and Butternut, are scattered a number of other deciduous species which have their northern limits in this locality. Among these are the Tulip-tree, Cucumber-tree, Pawpaw, Red Mulberry, Kentucky Coffee-tree, Redbud, Black Gum, Blue Ash, Sassafras, Mockernut Hickory, Pignut Hickory, Black Oak and Pin Oak. In addition, Black Walnut, Sycamore and Swamp White Oak are confined largely to this Region. Conifers are few but there is scattered distribution of Eastern White Pine, Tamarack, Eastern Red Cedar and Eastern Hemlock.

*The Grasslands.*—Although not a forest region, the prairies of Manitoba, Saskatchewan and Alberta support several species of trees in great numbers. Trembling Aspen forms groves or "bluffs" around wet depressions, and continuous dense stands along the northern boundary. Several other species of poplar are usually found along rivers and in moist locations, along with willows and some White Spruce. There are sporadic stands of White Birch, Manitoba Maple, Bur Oak and ash. In British Columbia, where the grasslands are confined to deep valleys and low areas of the interior, there are scattered representations of Ponderosa Pine, birches, poplars, spruce and Mountain Alder.

**Forest Land.**—Inventories of the forest resources of Canada are made periodically by provincial forest authorities and, with their co-operation, the Canadian Forestry Service of the Department of the Environment compiles national statistics.

The 1968 National Forest Inventory reported an area of 1,244,292 sq. miles of forest land. Of this total, 26,616 sq. miles are reserved by legislation for primary uses other than timber production. The remainder is divided into two categories—919,209 sq. miles suitable for regular harvest and 298,467 sq. miles unsuitable, because of slow regeneration and

growth. This second category is nevertheless capable of growing trees of merchantable size and volume to be marketable and also to dominate the vegetative associations. As inventories are extended and refined, the reported area of this category of forest land will no doubt be larger. Currently, only 65 p.c. of the forest land of Canada has been inventoried in the sense of gathering statistically reliable information on area and forest cover.

Table 1 shows the areas of these three categories of forest land by province and territory.

**1.—Forest Land,<sup>1</sup> by Province, according to the 1968 National Forest Inventory**

Province or Territory	Reserved <sup>2</sup>	Suitable for Regular Harvest <sup>3</sup>	Not Suitable for Regular Harvest <sup>4</sup>	Total
	sq. miles	sq. miles	sq. miles	sq. miles
Newfoundland—				
Labrador.....	116	20,878	12,817	33,811
Island.....	284	13,481	—	13,765
Prince Edward Island.....	11	965	—	976
Nova Scotia.....	531	15,024	—	15,555
New Brunswick.....	75	24,220	169	24,464
Quebec.....	97	190,383	78,000	268,480
Ontario.....	7,747	180,424	164	188,335
Manitoba.....	877	59,147	85	60,109
Saskatchewan.....	2,294	33,792	4,414	40,500
Alberta.....	9,525	93,948	3,281	106,754
British Columbia.....	5,059	210,684	—	215,743
<b>TOTALS, PROVINCES.....</b>	<b>26,616</b>	<b>842,946</b>	<b>98,930</b>	<b>968,492</b>
Yukon Territory.....	—	42,286	38,914	81,200
Northwest Territories.....	—	33,977	160,623	194,600
<b>Canada.....</b>	<b>26,616</b>	<b>919,209</b>	<b>298,467</b>	<b>1,244,292</b>

<sup>1</sup> Land capable of producing stands of trees four inches D.B.H. (diameter at breast height) and larger on 10 p.c. or more of the area; shelterbelts and units of forest of five acres or less and scattered are excluded; does not include agricultural land currently in use, although capable of producing trees as above. <sup>2</sup> Forest land in parks, game refuges, water conservation areas and nature preserves where, by legislation, wood production is not primary.

<sup>3</sup> Forest land estimated to have the capability of producing crops at regular intervals. <sup>4</sup> Distinguished from other classifications by observed or estimated productivity where a rotation period of an undetermined length is required to grow a merchantable stand of trees but with potential harvest possibilities; may be considered as an emergency reservoir with no "allowable cut" calculation.

The estimates of the merchantable timber, which are given by province in Table 2, are also subject to constant revision as more accurate and complete inventories are compiled. The volumes reported in the 1968 National Forest Inventory are smaller than those reported previously despite more extensive inventory coverage. This is the result of two factors—first, the 1963 inventory, which was the basis for previously presented information, provided rough estimates of timber volumes in Labrador and in the Yukon and Northwest Territories but, in the absence of reliable data, these areas were not covered in the 1968 inventory; secondly, British Columbia adopted procedures whereby data on volume of mature timber only were compiled.

*Tenure and State of Non-reserved Forest Land.*—Provincial Crown forest land constitutes 69 p.c. of the non-reserved forest land of Canada, leaving 23 p.c. under federal jurisdiction and 8 p.c. in private ownership. Of the provincial forest land, 69 p.c. is allocated to timber production and of the federal forest land less than 2 p.c. is so allocated. Although precise use of private forest land is a matter of speculation, individual studies and limited statistics suggest that timber production still predominates despite a tendency to convert some of this land to recreational use. At the time of the 1968 inventory, 10 p.c. of the non-reserved forest land was considered inadequately stocked for timber production.

## 2.—Merchantable Timber, by Type and by Province and Region, 1968

NOTE.—Data cover merchantable timber on inventoried, non-reserved forest land only, all maturity classes.

Province and Region	Coniferous	Broadleaved	Total
	million cu.ft.	million cu.ft.	million cu.ft.
Newfoundland.....	4,010	..	4,010
Labrador.....	..	..	..
Island.....	4,010	..	4,010
Prince Edward Island.....	97	52	149
Nova Scotia.....	6,045	2,539	8,584
New Brunswick.....	11,947	4,921	16,868
TOTALS, ATLANTIC PROVINCES.....	22,099	7,512	29,611
Quebec.....	96,954	33,443	130,397
Ontario.....	66,596	44,830	111,426
TOTALS, CENTRAL PROVINCES.....	163,550	78,273	241,823
Manitoba.....	9,991	2,763	12,754
Saskatchewan.....	9,913	7,087	17,000
Alberta.....	36,017	23,558	59,575
TOTALS, PRAIRIE PROVINCES.....	55,921	33,408	89,329
British Columbia.....	261,313	7,322	268,635
Yukon and Northwest Territories.....	..	..	..
Canada.....	502,883	126,515	629,398

## 3.—Tenure and State of Non-reserved Forest Land, 1968

Item	Newfoundland		Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario
	Labrador	Island					
	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles
<b>Crown-Provincial.....</b>	<b>33,695</b>	<b>4,733</b>	<b>10</b>	<b>3,125</b>	<b>11,139</b>	<b>240,161</b>	<b>160,916</b>
Allocated to Wood Production—							
Stocked.....	33,695	4,733	8	2,352	10,553	86,922	143,317
Inadequately stocked.....	—	—	2	773	586	16,027	1,883
Not Allocated to Wood Production—							
Stocked.....	—	—	—	—	—	136,278	15,716
Inadequately stocked.....	—	—	—	—	—	934	—
<b>Crown-Federal.....</b>	<b>—</b>	<b>—</b>	<b>2</b>	<b>33</b>	<b>511</b>	<b>303</b>	<b>1,761</b>
Allocated to Wood Production—							
Stocked.....	—	—	2	27	366	242	1,063
Inadequately stocked.....	—	—	—	6	112	61	578
Not Allocated to Wood Production—							
Stocked.....	—	—	—	—	33	—	120
Inadequately stocked.....	—	—	—	—	—	—	—
<b>Private.....</b>	<b>—</b>	<b>8,748</b>	<b>953</b>	<b>11,866</b>	<b>12,739</b>	<b>27,919</b>	<b>17,911</b>
Stocked.....	—	8,592	953	8,927	11,902	25,931	13,223
Inadequately stocked.....	—	156	—	2,939	837	1,988	4,688
<b>Totals, All Non-reserved Forest Land.....</b>	<b>33,695</b>	<b>13,481</b>	<b>965</b>	<b>15,024</b>	<b>24,389</b>	<b>268,383</b>	<b>180,588</b>



## 3.—Tenure and State of Non-reserved Forest Land, 1968—concluded

Item	Mani- toba	Saskat- chewan	Alberta	British Columbia	Northwest Territories	Yukon Territory	Canada
	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles	sq. miles
<b>Crown-Provincial.....</b>	<b>53,024</b>	<b>36,134</b>	<b>93,481</b>	<b>199,591</b>	—	—	<b>836,309</b>
Allocated to Wood Production—							
Stocked.....	25,555	9,173	53,920	137,967	—	—	508,195
Inadequately stocked.....	17,000	1,197	17,272	11,284	—	—	66,024
Not Allocated to Wood Produc- tion—							
Stocked.....	6,281	12,086	11,297	43,834	—	—	225,492
Inadequately stocked.....	4,188	13,678	10,992	6,806	—	—	36,598
<b>Crown-Federal.....</b>	<b>422</b>	<b>592</b>	<b>843</b>	<b>781</b>	<b>194,600</b>	<b>81,200</b>	<b>281,048</b>
Allocated to Wood Production—							
Stocked.....	319	592	469	625	—	80	3,785
Inadequately stocked.....	—	—	218	156	—	—	1,131
Not Allocated to Wood Produc- tion—							
Stocked.....	103	—	156	—	194,223	80,934	275,569
Inadequately stocked.....	—	—	—	—	377	186	563
<b>Private.....</b>	<b>5,786</b>	<b>1,480</b>	<b>2,905</b>	<b>10,012</b>	—	—	<b>100,319</b>
Stocked.....	2,834	1,480	2,905	8,792	—	—	85,539
Inadequately stocked.....	2,952	—	—	1,220	—	—	14,780
<b>Totals, All Non-reserved Forest Land.....</b>	<b>59,232</b>	<b>38,206</b>	<b>97,229</b>	<b>210,684</b>	<b>194,600</b>	<b>81,200</b>	<b>1,217,676</b>

**Canada's Forest Trees.**—There are approximately 140 recognized tree species in Canada,\* excluding the various subspecies and varieties. Of this number, 31 species are conifers or 'softwoods', about two thirds of which are of commercial value; less than one fifth of the native broadleaved trees or 'hardwoods' can be considered as commercially significant.

The most abundant forest trees in Canada, in terms of standing timber, are the spruces, pines, true firs, poplars, hemlocks, birches, cedars, Douglas-fir, maples and larches. However, the economic importance of these species, except for the spruces, does not necessarily correspond to their abundance.

About one third of Canada's timber volume is spruce. White Spruce and Black Spruce range from the Atlantic Coast almost to the Pacific and northward into Alaska. Sitka Spruce, the largest of the native spruces, is found in the Pacific Coast area; Engelmann Spruce is established farther inland, extending to the foothills of the Rockies in southwestern Alberta; and Red Spruce is found only in Eastern Canada. Spruce is used extensively for pulpwood, lumber and plywood.

Among the pines, two species—Jack Pine and Lodgepole Pine—comprise 11 p.c. of Canada's standing timber. Jack Pine grows from Nova Scotia to northern Alberta and the Northwest Territories and Lodgepole Pine is found in western Alberta, British Columbia and Yukon Territory. Eastern White Pine, which grows from the Atlantic to the eastern edge of the prairies, and Western White Pine produce valuable softwood lumber. Ponderosa Pine, found in the drier areas of southern British Columbia, and Red Pine, found in Eastern Canada, are important commercial species.

\* See *Native Trees of Canada*—7th Edition, Information Canada, Ottawa, 1969.

The four native firs are all commercial species, although Balsam Fir far outranks the other species in this regard. It is the only fir found in Eastern Canada and ranges from Newfoundland through all the provinces except British Columbia. Alpine Fir, essentially a high altitude tree, is found over a wide area in British Columbia and its range extends well into the western half of central Alberta and the Yukon. Amabilis Fir is a West Coast species, while Grand Fir is found both in the Pacific coastal areas and in the interior of British Columbia. Fir is commonly cut as pulpwood and, to a lesser extent, as sawlogs.

Douglas-fir, one of Canada's best known commercial trees, is not a true fir. The tree responsible more than any other for British Columbia's world-wide reputation for timber is the coastal form of Douglas-fir which is dominant in the forests of the province's lower coastal areas. An interior form, known as Blue Douglas-fir, is used on a large scale for lumber, plywood, construction timbers, piling and kraft pulp.

The poplars are the most abundant of the native broadleaved trees. They include Trembling and Largetooth Aspen, Balsam Poplar, and the three cottonwoods. The most widely distributed is Trembling Aspen, followed by Balsam Poplar; both species occur from Newfoundland to Alaska. The largest of the native poplars is Black Cottonwood; its range covers the lower two thirds of British Columbia and extends well into Alberta to the east in a pattern that follows the natural drainage basins. It also reaches as far north as the Yukon along the coast. This species is in demand for veneer stock. Other cottonwoods—Eastern Cottonwood and its western form known as Plains Cottonwood, and Narrowleaf Cottonwood—have a much narrower distribution.

Hemlocks, ranking fifth in volume of standing timber, have considerable commercial importance. Western Hemlock grows plentifully along the Pacific Coast and west of the Rockies in the interior wet belt of British Columbia. It is one of the principal timber-producing species in Western Canada and is also an important source of pulpwood. Eastern Hemlock is found from the Atlantic to western Ontario, although not in a wide or continuous pattern. It is used to produce a number of products including pulpwood, plywood and lumber. Mountain Hemlock is found in British Columbia in parts of the coastal forest and in the heavier rainfall areas of the interior.

Of the six native birches, only two are of commercial importance—Yellow Birch and White Birch. Most abundant is White Birch which grows over a vast part of Canada from the Atlantic to the Pacific and extends up to the northern tree limit. One variety, Western Paper Birch, reaches heights of 100 feet and diameters of three feet or more. Yellow Birch is a valuable hardwood species used extensively for flooring, veneer and plywood. Its range extends from the Atlantic to Lake Superior.

The native trees commonly known as 'cedars' include the Arbor-Vitae (Eastern White Cedar and Western Red Cedar), Yellow Cypress (Yellow Cedar) and a juniper (Eastern Red Cedar). Together they make up an important group of commercial species. Eastern White Cedar is found from Nova Scotia to Manitoba and as far north as James Bay in Quebec and Ontario. Its wood, which is light and resistant to decay, is used for posts, poles, boats and other purposes where timber is exposed to situations favourable to decay. Western Red Cedar is of major importance in British Columbia where it ranges from the Pacific Coast to the Rocky Mountains. It is used for lumber, exterior siding, shingles, poles and posts, doors, window sashes and other purposes where resistance to decay is required. Yellow Cypress—commonly called Yellow Cedar or Alaska Cedar—is found mainly in the Pacific Coast region where it grows down to sea level in the more northerly sections. As it extends farther south, it seeks higher elevations. Its wood, like that of the other cedars, is valued in situations where resistance to decay is needed.

There are ten native species of maple, six of which are of commercial value. Only two species are known as hard maples, producing wood that is both hard and strong—Sugar Maple and the closely related Black Maple. Sugar Maple ranges from the Atlantic to Lake Superior, while Black Maple is found mainly in southern Ontario. Hard maple constitutes one of the most valuable commercial hardwoods in Canada. It is used for furniture, flooring, veneer, quality plywood, turnery and other specialized purposes where strength

and hardness are needed. Sugar Maple and, to a lesser degree, Black Maple are tapped for the maple sugar industry. Bigleaf Maple is found on the lower Pacific Coast mainland and on Vancouver Island. The wood is only moderately hard and lacks strength but, owing to the limited local supply of hardwoods, this tree is of some importance for furniture and other specialized uses in the immediate area. Red Maple and Silver Maple are eastern species. Red Maple ranges from Newfoundland to western Ontario, while Silver Maple is concentrated mainly in southern Ontario and southwestern Quebec. Their wood is weaker and softer than that of the hard maples and these trees are not important timber producers. The Manitoba Maple, ranging from Ontario across the southern parts of Manitoba, Saskatchewan and southeastern Alberta, produces a soft, moderately light wood that is low in strength. It is better known as a shelterbelt tree.

There are three species of larch in Canada. Two of them—Eastern Larch, better known as Tamarack, and Western Larch—have commercial value. Tamarack is widely distributed from Newfoundland to the British Columbia-Yukon border and reaches far into the Northwest Territories. The wood is used for poles, posts, piling, boxes, crates and pulp. Western Larch, found mainly in southeastern British Columbia, is one of the important timber-producing trees of Western Canada. The wood, being hard and strong, is used mainly in construction but is also made into flooring, interior and exterior furnishings, and pulp.

Other trees of less commercial significance include oak, ash, beech, elm and basswood. Valuable as the wood of these species may be, it is usually obtainable in limited quantities only. However, the species may have considerable local importance and they also contribute greatly to the forest landscape.

Canada's total forest wealth is measured by the diversity as well as by the abundance of its trees. The better known species are the commercially exploited trees, but in the forest all species have a role to play in maintaining the ecological balance, controlling water run-off and preventing soil erosion, and also in providing a habitat for native fauna and recreational facilities for all who wish to enjoy them.

## Section 2.—Forest Depletion

The average annual forest depletion by cutting and fire is shown for the five-year period 1964-68 in Table 4. The primary sources of Canada's current wood production are the areas of Crown forest land allocated to wood production and private forest land. These two ownerships constitute 434,850,000 acres and, of that area, 1,803,000 acres, or less than one fifth of 1 p.c., were cut annually over the period shown and 593,000 acres, or about one tenth of 1 p.c., were burned. On a volume basis, the average annual depletion from cutting was 3,781,550 M cu. ft., which may be compared with an estimated permissible cut on a sustained-yield basis of 8,480,800 M cu. ft. from approximately the same areas of Crown and private land. In addition to cutting and fire, extensive forest depletion is caused by insects, diseases and natural mortality but no reliable estimates of these losses, either physical or economic, are available.

In aggregate, a large surplus of timber exists in Canada although there are shortages in some regions and shortages in some species which could be overcome by increased silvicultural and management inputs where such are considered to be economic. Also, greater utilization of individual trees and certain species could further extend the resource. Federal and provincial forestry programs are outlined in Section 4, pp. 665-677.

**Forest Fire Statistics.**—The number of forest fires reported in 1969, at 6,633, was substantially below the 7,701 in 1968 and the 8,650 in 1967. However, despite the reduction in fire incidence over these three years, the 2,331,378 acres of forest land destroyed by fire in 1969 was not only greater than that reported in either 1967 or 1968 but also surpassed the corresponding ten-year (1959-68) average by some 130,000 acres. The Yukon and Northwest Territories had by far the worst fire season of any region in Canada, accounting



for 68 p.c. of the total acreage burned. By comparison, the central and eastern provinces had one of their easiest years on record; they were responsible for 40 p.c. of the forest fires reported but their proportion of the area burned was only 1.5 p.c. and of the fire-fighting costs and damages, only 5 p.c. of the national total.

#### 4.—Forest Utilization and Depletion by Fire, Five-Year Average 1964-68

Item	Usable Wood	Percentage of Total Depletion
	'000,000 cu. ft.	
Products Utilized—		
Logs and Bolts—		
Domestic use.....	2,229	53.5
Exported.....	24	0.6
Pulpwood—		
Domestic use.....	1,186	28.4
Exported.....	105	2.5
Fuelwood.....	176	4.2
Other products.....	62	1.5
<b>Totals, Utilization.....</b>	<b>3,782</b>	<b>90.7</b>
Wastage—		
By forest fires.....	388	9.3
<b>Totals, Depletion.....</b>	<b>4,170</b>	<b>100.0</b>

Table 7, which classifies forest fires by cause, indicates close agreement between percentages for the current year and those for the eight-year average 1961-68. Lightning continued to be the major cause, accounting for 1,658 forest fires or a quarter of the 1969 total. Recreationists caused the second greatest number—1,345 or one out of every five fires reported. However, the lightning-caused fires were responsible for 65 p.c. of the total area burned compared with only 2 p.c. for recreationist-caused fires, probably because the latter are likely to be in areas more accessible to the fire fighters.

#### 5.—Forest Fire Losses, 1969, compared with Ten-Year Average 1959-68

Item	Average 1959-68	1969
<b>Fires.....No.</b>	<b>7,243</b>	<b>6,633</b>
Under 10 acres.....	6,120	5,844
10 acres or over.....	1,123	789
<b>Area Burned.....acres</b>	<b>2,201,381</b>	<b>2,331,378</b>
Merchantable timber.....	579,568	369,562
Young growth.....	489,799	1,178,637
Cut-over lands.....	137,771	43,937
Non-forested lands.....	994,243	739,242
<b>Average Size of Fire.....acres</b>	<b>304</b>	<b>351</b>
<b>Merchantable Timber Burned—</b>		
Saw timber.....M ft. b.m.	1,267,061	450,515
Small material.....cords	3,216,137	1,573,202
<b>Estimated Values Destroyed!.....\$</b>	<b>15,385,195</b>	<b>13,833,683</b>
Merchantable timber.....\$	10,584,146	7,557,859
Young growth.....\$	3,065,551	5,120,933
Cut-over lands.....\$	400,417	80,700
Other property burned.....\$	1,335,081	1,074,191
<b>Actual Cost of Fire Fighting.....\$</b>	<b>8,326,547</b>	<b>12,075,418</b>
<b>Totals, Damage and Fire-Fighting Cost.....\$</b>	<b>23,711,742</b>	<b>25,909,101</b>
Area under protection.....sq. miles	1,464,818	1,535,565

<sup>1</sup> Figures do not include such values as damage to soil, stream-flow, wildlife, recreation and tourist facilities.

**6.—Forest Fire Losses, by Province or Area, 1969, compared with Ten-Year Average 1959-68**

Province or Federal Lands	Averages 1959-68			1969		
	Fires	Area Burned	Fire-Fighting Cost and Damage	Fires	Area Burned	Fire-Fighting Cost and Damage
	No.	acres	\$	No.	acres	\$
<b>Province—</b>						
Newfoundland.....	218	217,196	1,293,032	153	20,151	26,212
Prince Edward Island.....	1	1	1	1	1	1
Nova Scotia.....	553	7,661	90,388	623	2,813	52,951
New Brunswick.....	473	14,389	380,387	417	2,624	171,377
Quebec.....	955	160,793	3,622,377	609	3,311	353,937
Ontario.....	1,435	142,674	4,507,765	901	6,134	744,133
Manitoba.....	395	463,991	1,183,918	326	61,238	431,787
Saskatchewan.....	302	429,016	1,663,986	398	153,779	1,986,977
Alberta.....	498	147,846	3,960,533	548	72,151	5,457,035
British Columbia.....	2,173	252,610	5,957,484	2,318	406,763	11,791,247
<b>Federal Lands—</b>						
Yukon Territory.....	60	79,076	263,453	111	909,976	2,645,125
Northwest Territories.....	125	277,007	723,145	131	683,885	1,833,212
National parks.....	38	8,601	54,312	85	7,932	411,837
Indian lands.....	2	2	2	2	2	2
Other federal lands (including military areas).....	18	521	10,962	13	621	3,271
<b>Totals.....</b>	<b>7,243</b>	<b>2,201,381</b>	<b>23,711,742</b>	<b>6,633</b>	<b>2,331,378</b>	<b>25,909,101</b>

<sup>1</sup> Not reported.<sup>2</sup> Included in provincial figures.**7.—Forest Fires, by Cause, 1969, compared with Eight-Year Average 1961-68**

Cause	Averages 1961-68		1969	
	No.	p.c.	No.	p.c.
Recreation.....	1,762	23	1,345	20
Settlement.....	897	12	673	10
Woods operations.....	280	4	427	7
Railways.....	368	5	477	7
Other industries.....	337	5	274	4
Incendiary.....	330	4	272	4
Miscellaneous known.....	1,186	16	987	15
Unknown.....	395	5	520	8
<b>Totals, Man-caused.....</b>	<b>5,555</b>	<b>74</b>	<b>4,975</b>	<b>75</b>
Lightning.....	1,971	26	1,658	25
<b>Totals, All Fires.....</b>	<b>7,526</b>	<b>100</b>	<b>6,633</b>	<b>100</b>

**Section 3.—Statistics of Forest and Allied Industries**

This Section is concerned with the many industries engaged in the felling of timber and its transformation into a great variety of products required in modern living. The extensive forests of Canada provide raw materials for several large and growing primary industries, i.e., the sawmills and planing mills, the shingle mills, the veneer and plywood mills, the particle board plants and the pulp and paper mills, which in their turn provide raw materials for a wide range of secondary industries that convert the products of the primary industries into more highly manufactured goods such as sash, doors, millwork, wooden boxes, furniture, converted papers and paper goods, etc. However, much of the output of the primary forest industries is exported; the sawmill industry and the pulp and paper industry, especially, contribute substantially to the value of the export trade of Canada and thereby provide an important part of the foreign exchange necessary to pay for the imports from other countries.

Statistics of manufacturing activity and total activity of the wood industries and the paper and allied industries may be found in a number of tables in Chapter XV on Manufactures.

### Subsection 1.—Logging Industry

The forests of Canada provide the raw materials for its sawmills and planing mills, shingle mills, veneer and plywood mills, particle board plants and pulp and paper mills as well as roundwood for export in unmanufactured state and other products such as fuelwood, poles and piling, fence posts, mining timber, Christmas trees, etc. Tables 8 and 9 give the estimated quantities of wood cut in Canada, by province and by type of product. In estimating the annual cut, certain factors have been used to convert commercial units to cubic feet. These are as follows (British Columbia estimates are supplied by the British Columbia Forest Service):—

Product		Equivalent Volume in Cubic Feet		
		British Columbia Coast	Interior	Other
Logs and bolts.....	M ft. b.m.	166.6	173.9	200
Pulpwood.....	cord	80	80	85
Fuelwood.....	"	80	80	80
Round mining timber.....	"	100	100	85
Wood for charcoal.....	"	...	...	80
Fence posts.....	No.	1	1	1.2
Fence rails.....	"	1	1	1

### 8.—Volume of Wood Cut, by Province, 1965-69

Province or Territory	1965	1966	1967	1968	1969
	M cu. ft.	M cu. ft.	M cu. ft.	M cu. ft.	M cu. ft.
Newfoundland.....	98,810	100,414	86,393	83,373	83,213
Prince Edward Island.....	6,685	6,663	5,862	5,715	5,638
Nova Scotia.....	106,792	108,209	108,923	128,209	121,227
New Brunswick.....	195,297	212,621	203,800	238,059	236,414
Quebec.....	935,709	994,015	999,655	963,090	1,060,070
Ontario.....	567,131	600,922	607,085	590,964	621,645
Manitoba.....	42,491	43,407	35,922	39,183	52,901
Saskatchewan.....	45,403	46,387	64,469	64,584	82,130
Alberta.....	126,584	130,268	111,265	130,769	145,773
British Columbia.....	1,533,113	1,602,437	1,572,599	1,702,455	1,890,052
Yukon and Northwest Territories.....	2,654	3,676	4,474	3,875	4,753
<b>Canada.....</b>	<b>3,660,669</b>	<b>3,849,019</b>	<b>3,798,446</b>	<b>3,950,276</b>	<b>4,303,816</b>

### 9.—Volume of Wood Cut, by Type of Product, 1967-69

Type of Product	1967		1968		1969	
	Quantity Reported or Estimated	Equivalent Volume in M cu. ft. <sup>1</sup>	Quantity Reported or Estimated	Equivalent Volume in M cu. ft. <sup>1</sup>	Quantity Reported or Estimated	Equivalent Volume in M cu. ft. <sup>1</sup>
Logs and bolts.....	M ft. b.m.	12,556,813	2,237,537	13,381,404	2,381,574	14,587,851
Pulpwood.....	cord	15,653,361	1,329,048	15,999,758	1,357,039	17,825,768
Fuelwood.....	"	2,105,519	168,442	2,065,549	165,244	1,891,829
Poles and piling.....	M cu. ft.	17,207	17,207	10,560	10,560	8,901
Round mining timber.....	cord	57,442	4,898	48,551	4,138	46,357
Wood for charcoal.....	"	29,000	2,320	26,000	2,080	19,500
Fence posts.....	No.	21,087,955	25,202	17,591,667	20,918	17,211,074
Fence rails.....	"	1,546,918	1,547	688,910	689	468,925
Miscellaneous roundwood.....	M cu. ft.	12,245	12,245	8,034	8,034	10,911
<b>Totals.....</b>	<b>...</b>	<b>3,798,446</b>	<b>...</b>	<b>3,950,276</b>	<b>...</b>	<b>4,303,816</b>

<sup>1</sup> See statement preceding Table 8.



## Subsection 2.—Wood Industries

The standard industrial classification subdivides the wood industries group into the following industries: sawmills and planing mills, shingle mills, veneer and plywood mills, sash, door and other millwork plants, hardwood flooring mills, wooden box factories, the coffin and casket industry and miscellaneous wood industries. The latter item is further subdivided into the wood preservation industry, the wood handles and turning industry, and miscellaneous wood industries, *n.e.s.*

The sawmills and planing mills, the shingle mills, the veneer and plywood mills and the particle board plants (the latter are included in the miscellaneous wood industries, *n.e.s.* group) use mainly roundwood as a raw material and sometimes are called primary wood industries and are dealt with separately below. The other industries, which constitute the secondary wood industries, further manufacture part of the production of the primary wood industries into a great variety of products. However, most of the production of the primary wood industries is not further processed.

**Sawmill and Planing Mill Industry.**—Lumber is by far the most important single product of this industry and, as shown in Table 10, British Columbia is the most important province in this field. It should also be noted that the shipment figures of Tables 10 and 11 contain a certain element of duplication because sales of lumber from one sawmill to another will be reported as shipments by both establishments. Similar situations occur in most industries to a greater or lesser extent.

In addition to the lumber produced by the sawmill and planing mill industry, a small amount is produced by establishments classified to other industries, bringing total lumber production in Canada in 1969 to 11,535,170 M ft. b.m. compared with 11,351,000 M ft. b.m. in 1968.

**10.—Lumber Production and Shipments and Value of All Shipments of the Sawmill and Planing Mill Industry, by Province, 1968 and 1969**

Year and Province or Territory	Lumber			Value of Shipments of Goods of Own Manufacture
	Production	Quantity Shipped	Value of Shipments	
	M ft. b.m.	M ft. b.m.	\$'000	\$'000
<b>1968</b>				
Newfoundland.....	7,338	10,688	931	1,106
Prince Edward Island.....	2,782	977	73	1
Nova Scotia.....	216,742	186,414	15,572	19,305
New Brunswick.....	266,199	281,284	24,886	35,518
Quebec.....	1,611,553	1,539,348	135,075	167,536
Ontario.....	841,642	736,302	76,824	98,258
Manitoba.....	33,866	28,849	1,849	2,210
Saskatchewan.....	84,436	106,656	8,767	10,355
Alberta.....	341,626	385,520	29,950	35,389
British Columbia.....	7,341,007	7,703,089	707,896	809,175
Yukon and Northwest Territories.....	7,332	7,904	584	1
<b>Canada.....</b>	<b>10,754,523</b>	<b>10,987,031</b>	<b>1,002,407</b>	<b>1,179,573</b>
<b>1969</b>				
Newfoundland.....	10,453	12,589	1,192	1,367
Prince Edward Island.....	3,760	1,037	87	1
Nova Scotia.....	206,834	179,842	16,654	20,900
New Brunswick.....	320,416	320,575	29,918	45,532
Quebec.....	1,705,523	1,550,266	143,370	181,755
Ontario.....	840,938	751,736	83,186	105,640
Manitoba.....	40,333	36,622	2,501	3,315
Saskatchewan.....	98,689	93,811	8,595	10,414
Alberta.....	429,133	403,544	33,980	38,934
British Columbia.....	7,438,515	7,560,243	737,968	858,482
Yukon and Northwest Territories.....	5,743	6,726	616	1
<b>Canada.....</b>	<b>11,100,357</b>	<b>10,916,991</b>	<b>1,058,066</b>	<b>1,267,194</b>

<sup>1</sup> Confidential.

### 11.—Quantity and Value of Lumber Shipments of the Sawmill and Planing Mill Industry, by Species, 1967-69

Kind of Wood	1967		1968		1969	
	Quantity	Value	Quantity	Value	Quantity	Value
	Mft. b.m.	\$'000	Mft. b.m.	\$'000	Mft. b.m.	\$'000
Spruce.....	3,813,468	266,338	4,333,519	355,903	4,580,452	395,813
Douglas-fir.....	1,956,150	153,867	1,980,009	189,275	1,784,319	184,537
Hemlock.....	2,126,046	159,764	2,098,327	191,320	1,906,858	187,080
Cedar.....	763,023	68,761	850,484	92,889	857,712	104,339
White Pine.....	263,225	28,342	266,665	30,421	288,058	35,829
Jack Pine.....	295,076	21,352	339,692	26,640	355,434	28,958
Maple.....	183,816	23,508	198,808	25,291	209,771	27,850
Yellow Birch.....	147,726	21,031	140,099	19,104	140,413	19,462
Lodgepole Pine.....	294,444	18,448	333,321	26,623	381,914	32,329
Balsam Fir.....	133,320	9,962	143,510	12,787	146,620	12,649
Other.....	358,854	31,889	302,597	32,154	265,440	29,220
<b>Totals.....</b>	<b>10,335,148</b>	<b>803,262</b>	<b>10,987,031</b>	<b>1,002,407</b>	<b>10,916,991</b>	<b>1,058,066</b>

**Shingle Mill Industry.**—Most of the shingles and shakes produced in Canada are from British Columbia mills. All establishments classified to this industry reported, for the year 1969, shipments of 2,187,184 squares of shingles and shakes valued at \$42,057,000, of which British Columbia accounted for 2,050,202 squares valued at \$40,620,000. However, it should be mentioned that considerable quantities are produced by establishments classified to other industries and by individuals intermittently operating one or two shingle machines or producing by hand; although no adequate measure of this production is available, it is known to contribute significantly to the total. Of the total production in 1969, 2,396,000 squares were exported, 2,337,000 squares going to the United States.

**Veneer and Plywood Industry.**—The production of hardwood veneer and plywood in Canada is confined largely to the eastern provinces and the production of softwood veneer and plywood almost entirely to British Columbia. For the latter, Douglas-fir is most commonly utilized because of the availability of large-diameter logs of this species from which large sheets of clear veneer can be obtained. Of the hardwoods, Yellow Birch is by far the most important species. Although most of the raw materials for this industry are of Canadian origin, some decorative woods are imported, particularly walnut.

About 54 p.c. of the shipments of veneer, shown in Table 12, are softwood veneers; most of these are further manufactured into plywood by Canadian mills, thus contributing to the shipments of plywood shown in the same table. Some of the hardwood veneers are also shipped to other veneer and plywood mills for further manufacture or to other industries such as the furniture industry for veneering purposes, but a significant portion is exported. Total exports in 1969 amounted to 938,138 M sq. ft. valued at \$29,290,400, of which 875,797 M sq. ft. valued at \$25,075,000 went to the United States.

Most of the plywood is consumed in Canada, although exports are not unimportant; in 1969 these amounted to 35,334 M sq. ft. of hardwood plywood valued at \$6,145,000 and 643,350 M sq. ft. of softwood plywood valued at \$44,639,000. The greater part of the exports of hardwood plywood went to the United States (32,048 M sq. ft. valued at \$5,400,000) but most of the softwood plywood exports went to Britain (447,937 M sq. ft. valued at \$31,233,000).

### 12.—Veneer and Plywood Shipments, by Type, 1967-69

Type	1967		1968		1969	
	Quantity	Value	Quantity	Value	Quantity	Value
	M sq. ft.	\$'000	M sq. ft.	\$'000	M sq. ft.	\$'000
Veneer.....	2,294,661 <sup>1</sup>	48,330	2,582,055 <sup>1</sup>	55,450	2,788,589 <sup>1</sup>	56,307
Softwood plywood.....	1,791,435 <sup>2</sup>	142,648	1,953,735 <sup>2</sup>	163,513	1,907,330 <sup>2</sup>	171,741
Hardwood plywood.....	382,754 <sup>2</sup>	38,938	375,058 <sup>2</sup>	41,293	378,323 <sup>3</sup>	40,790

<sup>1</sup> Surface measure.<sup>2</sup>  $\frac{3}{4}$ " unsanded basis.<sup>3</sup>  $\frac{3}{4}$ " sanded basis.

### Subsection 3.—Paper and Allied Industries

The standard industrial classification subdivides the paper and allied industries group into the following industries: the pulp and paper industry, the asphalt roofing manufacturers, the paper box and bag manufacturers, and other paper converters. Statistics of manufacturing activity and total activity of the paper and allied industries group are given in Chapter XV on Manufactures.

**Pulp and Paper Industry.**—This industry is by far the most important of the group. In fact, it has been for many years the leading industry in Canada, contributing about 2 p.c. of the total gross national product and close to 14 p.c. (1969) of the total value of the country's exports. There were 138 pulp and paper mills in operation in 1969.

These mills consume enormous quantities of roundwood, 20,332,821 rough cords with a cost value of \$586,204,000 being so used in 1969. In that year, 109,000 cords of pulpwood were imported and 1,036,000 cords were exported. In addition, the pulp and paper mills use wood residues of the sawmill and other industries for pulping, such as cores of peeler logs, slabs and edgings or wood chips made thereof, shavings, etc., and recently even sawdust has been used successfully for this purpose. The total of such wood residues used by the industry in 1969 amounted to the equivalent of 7,523,668 rough cords of pulpwood, valued at \$160,347,000. The industry also consumes large amounts of electric power, chemicals and other goods and services and requires great quantities of clean water.

Some of the production of the pulp and paper industry is consumed in Canada or serves as a raw material for the paper-using or secondary paper and allied industries and certain other industries, but a great part of it is exported, particularly newsprint and various types of pulp (see Table 15), most of it to the United States. Some plants included in the pulp and paper industry classification also convert basic paper and paperboard into more highly manufactured papers, paper goods and boards but their output represents only a small part of Canada's total production of converted papers and boards. Tables 13 and 14 give shipment and production figures for pulp and shipment figures for basic paper and paperboards for 1965-69 and Table 15 shows exports of pulp and of newsprint to Britain, United States and all countries for 1965-70.

**13.—Pulp Shipments and Production, 1965-69**

Item	1965	1966	1967	1968	1969
<b>Mill Shipments of Pulp<sup>1</sup>.....</b>	<b>'000 tons</b>	<b>'000 tons</b>	<b>'000 tons</b>	<b>'000 tons</b>	<b>'000 tons</b>
	\$'000	\$'000	\$'000	\$'000	\$'000
Groundwood pulp.....	330	319	257	257	302
	\$'000	\$'000	\$'000	\$'000	\$'000
Chemical pulps.....	4,296	4,731	4,873	5,708	6,597
	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Pulp Production<sup>2</sup>.....</b>	<b>'000 tons</b>	<b>'000 tons</b>	<b>'000 tons</b>	<b>'000 tons</b>	<b>'000 tons</b>
Quebec.....	5,450	6,022	5,802	5,918	6,547
Ontario.....	3,357	3,587	3,619	3,644	3,961
British Columbia.....	3,275	3,669	3,868	4,378	4,879
Other provinces <sup>3</sup> .....	2,491	2,680	2,568	2,822	3,203

<sup>1</sup> Includes screenings.

<sup>2</sup> The differences between these figures and the quantities of mill shipments represent the amounts of pulp further manufactured by the reporting companies.

<sup>3</sup> Prince Edward Island is the only province in which there is no production.



## 14.—Shipments of Basic Paper and Paperboard, by Type and by Province, 1965-69

Type and Province	1965	1966	1967	1968	1969
<b>Type</b>					
Newsprint paper.....'000 tons	7,841	8,493	8,108	8,204	8,863
.....\$'000	927,832	1,025,048	998,019	1,015,794	1,114,707
Book and writing paper.....'000 tons	535	621	628	662	731
.....\$'000	150,289	176,278	184,944	187,145	206,686
Wrapping paper.....'000 tons	360	413	458	459	497
.....\$'000	80,240	89,685	93,314	92,220	104,303
Paperboard.....'000 tons	1,420	1,534	1,567	1,627	1,745
.....\$'000	202,175	220,584	228,365	239,717	260,509
All other papers.....'000 tons	171	183	203	229	259
.....\$'000	29,374	32,979	38,082	39,740	46,947
<b>Totals.....'000 tons</b>	<b>10,327</b>	<b>11,243</b>	<b>10,963</b>	<b>11,183</b>	<b>12,093</b>
.....\$'000	<b>1,389,910</b>	<b>1,544,576</b>	<b>1,542,726</b>	<b>1,574,616</b>	<b>1,733,151</b>
<b>Province</b>					
Quebec.....'000 tons	4,463	5,003	4,885	5,035	5,418
.....\$'000	597,420	686,562	688,064	701,750	773,739
Ontario.....'000 tons	2,810	2,935	2,906	2,891	3,109
.....\$'000	423,496	456,241	462,534	471,800	507,792
British Columbia.....'000 tons	1,521	1,603	1,609	1,660	1,872
.....\$'000	185,423	195,471	199,399	205,851	237,891
Other provinces <sup>1</sup> .....'000 tons	1,533	1,702	1,563	1,597	1,694
.....\$'000	183,571	206,302	192,730	195,215	213,729

<sup>1</sup> Prince Edward Island is the only province in which there is no production.

## 15.—Exports of Pulp and of Newsprint to Britain, United States and All Countries, 1965-70

Commodity and Year	Britain		United States		All Countries	
	Quantity	Value	Quantity	Value	Quantity	Value
	tons	\$'000	tons	\$'000	tons	\$'000
<b>Pulp</b>						
1965.....	347,167	40,404	2,812,616	370,380	3,852,650	493,501
1966.....	323,766	35,588	2,977,846	390,760	3,854,000	492,961
1967.....	272,543	32,318	2,902,256	382,446	4,269,005	543,433
1968.....	315,271	37,825	3,128,341	416,807	4,071,822	627,874
1969.....	288,050	36,158	3,807,044	514,242	5,794,575	753,488
1970.....	377,385	49,540	3,315,519	485,453	5,681,825	785,229
<b>Newsprint</b>						
1965.....	370,372	46,932	6,112,414	735,611	7,189,700	869,586
1966.....	384,034	48,883	6,652,270	823,664	7,821,148	968,224
1967.....	336,041	43,642	6,340,321	815,780	7,463,801	955,261
1968.....	438,471	54,862	6,138,552	826,809	7,479,000	989,831
1969.....	486,916	60,616	6,525,512	919,877	8,235,000	1,125,801
1970.....	411,665	59,596	6,212,134	872,544	8,090,007	1,110,393

**World Pulp and Newsprint Statistics.**—Figures of production, exports and imports of pulp for certain countries of the world are shown for 1967 and 1968 in Table 16. It is estimated that these countries produced 71 p.c. of the world supply of pulp in 1968.

**16.—Production, Exports and Imports of Pulp, by Leading Countries, 1967 and 1968**(SOURCE: FAO *Year Book of Forest Products Statistics*)

Country	1967			1968		
	Production	Exports	Imports	Production	Exports	Imports
	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons
<b>Canada</b> <sup>1</sup> .....	<b>15,767</b>	<b>4,268</b>	<b>36</b>	<b>16,578</b>	<b>6,400</b>	<b>46</b>
United States.....	35,478	1,720	3,141	37,895	2,815	3,499
Finland.....	6,302	2,341	8	6,557	2,007	2
Norway.....	1,984	904	114	2,183	909	147
Sweden.....	7,548	3,893	6	7,756	4,727	5

<sup>1</sup> Production figures differ slightly from Statistics Canada figures given in Table 13 because of a different basis of calculation.

Figures for the leading newsprint-producing countries for 1967, 1968 and 1969 are given in Table 17. The seven countries listed accounted for over 83 p.c. of the estimated world production in 1969, Canada contributing over 39 p.c.

**17.—Estimated World Newsprint Production and Exports, by Leading Countries, 1967-69**

(SOURCE: Newsprint Association of Canada)

Country	1967		1968		1969	
	Production	Exports	Production	Exports	Production	Exports
	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons	'000 tons
<b>Canada</b> <sup>1</sup> .....	<b>8,051</b>	<b>7,330</b>	<b>8,031</b>	<b>7,422</b>	<b>8,758</b>	<b>8,033</b>
United States.....	2,620	90	2,935	129	3,232	117
Japan.....	1,460	7	1,622	6	1,779	4
Finland.....	1,201	1,091	1,227	1,131	1,212	1,108
Britain.....	788	2	811	2	876	2
Union of Soviet Socialist Republics.....	1,065	205	1,120	241	1,358	273
Sweden.....	762	465	844	555	964	659

<sup>1</sup> Figures differ slightly from Statistics Canada figures given in Tables 14 and 15 because of different bases of calculation.

**Asphalt Roofing Manufacturers.**—These establishments produce composition roofing and sheathing, consisting of paper felt saturated with asphalt or tar and, in some cases, coated with a mineral surfacing. They also produce vinyl-asbestos and pure vinyl floor tiles. Their total shipments in 1969 were valued at \$63,442,000 compared with \$58,567,000 in 1968.

**Paper Box and Bag Industries.**—These industries include manufacturers of folding cartons and set-up boxes, manufacturers of corrugated boxes and manufacturers of paper bags. Their total shipments in 1969 amounted, respectively, to \$174,607,000, \$274,132,000 and \$184,411,000, compared with \$166,486,000, \$240,045,000 and \$170,083,000, respectively, in 1968.

**Other Paper Converters.**—This group produces a host of paper products such as envelopes, waxed paper, clay-coated and enameled paper and board, aluminum foil laminated with paper or board, paper cups and food trays, facial tissues, sanitary napkins, paper towelling and napkins, toilet tissue, etc. The total value of manufacturing shipments of this industry in 1969 amounted to \$365,946,000 compared with \$339,960,000 in 1968.

## Section 4.—Forest Administration, Research and Conservation

### Subsection 1.—Federal Forestry Program

**Administration.**—The Federal Government is responsible through several departments and agencies for the protection and administration of the forest resources in the Yukon and Northwest Territories and on other federal lands such as the national parks, Indian reserves, military areas and forest experiment stations.

The primary federal organization concerned with forestry is the Canadian Forestry Service of the Department of the Environment. This Service promotes the effective management and use of the nation's forest resources by: (1) conducting research in the forest resource and forest products fields; (2) undertaking, promoting and recommending measures for the encouragement of public co-operation in the protection and wise use of the forest resources of Canada; (3) entering into agreements with provincial governments and individuals relative to forest management, protection or utilization, for the conduct of research relating thereto, or for forest publicity or education; (4) providing forest surveys and advice on protection and management of federally administered forest lands; and (5) assuming responsibility for forest protection and management on federal lands at the request of the department or agency concerned.

Heading the Canadian Forestry Service is an Assistant Deputy Minister responsible to the Deputy Minister of the Department. Reporting to the Assistant Deputy Minister are the Directors of Coordination, Operations, and Forestry Relations. The three Directors are responsible respectively for: program development, co-ordination and control; the control and co-ordination of management resources (including personnel, finances and facilities); and forestry matters involving other federal and provincial government departments as well as national and international agencies and organizations. Within the Service there are seven research institutes undertaking work which, for the most part, has broad national applications. This research supports and complements the activities of the Pacific, Northern, Great Lakes, Laurentian, Maritimes, and Newfoundland Forest Research Centres which together serve all of Canada. Forest products research is conducted at the Western Forest Products Laboratory in Vancouver and at the Eastern Forest Products Laboratory in Ottawa.

The forestry program of the Canadian Forestry Service falls within three categories—forest resource research and services, forest products research and services, and support of university research.

**Forest Resource Research and Services.**—The work undertaken in this category covers research, surveys and related services pertaining to forest land and forest soils; forest inventory and mensuration; silviculture and tree biology; timber harvesting; protection against fire, insects and diseases; and forest economics.

Research in forest land is directed largely toward establishing practical land classification systems for forestry purposes. In forest-soils research, programs dealt with include soil chemistry, soil biology and the hydrologic characteristics of watersheds but, currently, considerable emphasis is being given to forest fertilization and related mineral-nutrition studies.

Considerable attention is devoted to improvement of forest inventory techniques; large-scale aerial photography, combined with a radar altimeter, has been developed to the point where it is in operational use in a forest inventory of Labrador. Research in new techniques of remote sensing for forestry purposes is accelerating, and the possibility of ultra-small-scale, high-altitude aerial photography and satellite photography is being investigated. Studies of growth and yield, the evaluation of site potential, and the development of mathematical models for trees and forests are continuing to provide valuable information for reforestation operations and for forest management.



A substantial portion of the research program in silviculture involves the study of factors responsible for the success or failure of natural regeneration following various methods of cutting and treatment of seedbeds; the development of improved methods of regenerating forest stands following logging or fire; and the establishment of forests on abandoned farmland, heathland or bogland. Different methods of seeding and planting are being compared, and increased emphasis is being given to problems associated with container planting. The effects of mechanization of logging on reproduction and on slash and soil conditions are being investigated. Studies of different methods of stand-tending such as pruning, cleaning and thinning are under way to determine means of increasing both quantity and quality of wood production. Investigations of successional changes are in progress in most of the important forest types, and the relation of forest growth to site is being studied with a view to the assessment of long-term productivity. The light, temperature and moisture conditions required to produce optimum growth and development of various tree seedlings are being determined to provide guidelines for improved forestry practices. In tree breeding, superior strains are selected or developed, and there is continual improvement in propagation and breeding techniques.

Research on timber harvesting has been intensified by work conducted within the logging development program of the Forest Management Institute. The objective of this work is to improve logging productivity and reduce the cost of wood delivered from the standing forest to the consuming mills.

Adequate protection of forests against fire is of vital importance in Canada. The Service works in full co-operation with provincial forest services in almost all phases of forest fire control and has made major contributions in the fields of forest fire danger measurement and forecasting and in fire control planning. Investigations are being made of forest fire behaviour, of the use of prescribed fire for hazard reduction and seedbed preparation, of better methods of reporting forest fires, and of fire damage appraisal and related factors in forest protection standards. Studies are being continued in the use of chemicals for fire suppression and pre-suppression, of fire-fighting equipment and techniques, and of the use of aircraft in forest fire control. Another important field of endeavour is the study of fire hazard created by slash from various kinds of logging practices for different species.

Research on forest insects and diseases is conducted at Service research centres and field stations throughout Canada. A Canada-wide survey is undertaken in co-operation with the provincial forest services and forest industries to maintain an annual census of forest insect and disease conditions and to detect and predict the occurrence of outbreaks. Survey results are made available to owners and operators of forest lands for use in planning salvage programs and directing control measures to reduce damage.

Experiments are also carried out in insect and disease control, utilizing cultural techniques, chemicals and biological control agents including parasites, predators and insect pathogens. Technical advisory services are provided in evaluating quarantine programs, possibilities of eradication or control, or other applications of research results. Examples include recommendations for reduction of seedling losses in forest tree nurseries through cultural techniques and chemical applications; the co-operative organization of cull surveys to improve forest inventories; consultation and advisory services for local authorities on the Dutch elm disease problem; and technical co-operation with provincial governments and industrial agencies in the organization of spraying operations. Of particular significance in the summer of 1971 were the large-scale chemical control operations covering about 7,500,000 acres of forest land infested with spruce budworm in the Maritimes, Quebec and Ontario areas.

Research programs are designed to lead to comprehensive understanding of the biology and ecology of the more destructive forest insects and fungi, and the causes of fluctuations in abundance or severity of damage in time and place. Problems under intensive study include insect defoliators, leaf diseases, sucking insects, dwarf mistletoes, stem cankers, bark- and wood-boring beetles, trunk and root decays, tip- and root-boring insects, and

*The Eastern Forest Products Laboratory of the Department of the Environment has applied for patents on a promising new non-leachable fire-retardant developed by its scientists. A cedar shingle roof deck, treated with the retardant, is shown undergoing test.*



diseases of tree seedlings in forest nurseries. Problems of national importance in insect pathology, cytology and genetics, bio-climatology and chemical control are investigated.

Current research in the economics of forestry includes the compilation and assessment (on a national basis) of forest inventory data in order to develop a better understanding of the economic availability of timber and forest resources. Studies of the future demand for Canadian forest products, including trends of wood used in residential construction and the potential for forest products trade with Japan, are related to the supply situation. Other current work focuses on the impact of forest industries on a local economy, the economic implications of pollution control for the pulp and paper industry, and the development of methods to predict lumber prices.

**Forest Products Research and Services.**—This work is directed toward obtaining background data on the properties of Canadian woods, developing new and better uses for wood products, improving methods of processing, effecting more complete utilization of wood substances, and reducing the pollution of air, water and land which may result from the operation of forest industries. Activities cover all major aspects of forest products and include: the determination of the physical, mechanical, chemical and anatomical properties of wood and their relation to adaptability in use; studies of factors affecting quality of wood and of manufactured wood products; determination of factors that cause wood waste in logging and manufacturing; investigation into fire retardant treatments, the preservative treatment and painting of wood and the use of wood for the manufacture of a variety of products by chemical or mechanical means; and studies to determine possible new economic and more valuable uses for woods and to determine methods for the economical utilization of all wood substances available from the annual timber harvest.

The program is conducted mainly at two laboratories—Ottawa and Vancouver—with research units covering timber engineering, containers, glues and gluing, veneer and plywood, timber physics, wood chemistry, pulping, wood preservation, paints and coatings, wood pathology, products entomology, wood anatomy, logging, lumber manufacture and



lumber seasoning. Research results are made available to the thousands of plants comprising Canada's timber-manufacturing and wood-using industries. Liaison is maintained with these industries to ensure that the research being conducted is of optimum national benefit. There is also constant co-operation with various government units in conducting many investigations concerned with wood use. Research into the use of wood in housing construction and as an engineered material continues in co-operation with the National Research Council and the Central Mortgage and Housing Corporation.

Through the medium of research contracts awarded to industry, provincial research councils, universities and others, a program has been established to abate pollution caused by the pulp and paper industry. The objective is to find cheaper and better methods for reducing the amount of dissolved wood substances and harmful chemicals released into receiving waters.

A number of regional establishments have forest products liaison officers who visit sawmills and other wood-working plants to keep industry aware of research developments and technical advances and to ensure that the Service is informed of field problems on which research would be of value.

Continuing research on the economics of forest products covers a survey of lumber and wood-based panel products utilized in residential dwellings, together with a study of possible future markets for lumber and plywood.

Service personnel serve on many national and international technical committees concerned with forestry problems, and continuous collaboration is maintained with forest products laboratories in other countries for the dual purpose of exchanging information and avoiding duplication of research.

**Support of University Research.**—Operating grants are made available to the four Canadian forestry schools to assist their development through support of research conducted by faculty members and postgraduate students.



*Models of spherical frames fabricated in Western Forest Products Laboratory. This unique design concept, designed by students in architecture, offers a minimum of materials and other advantages of weight and low heating construction costs that make it practical for applications.*



### Subsection 2.—Provincial Forestry Programs

All forest land in provincial territory, with the exception of the minor portions in national parks, federal forest experiment stations, military areas and Indian reserves, is administered by the respective provincial governments. The forestry program of each province is outlined below.

**Newfoundland and Labrador.**—Geographically, the Province of Newfoundland has two separate regions—the Island and Labrador on the mainland. The productive forest land is estimated at approximately 34,000 sq. miles—about 13,000 sq. miles on the Island and 21,000 on the mainland. Most of Labrador's forests are leased but are as yet virtually untouched.

A large part of the forest land of the Island is leased, licensed or owned by paper companies, but a three-mile-wide belt along most of the coastline is retained as unoccupied Crown land for the purpose of providing firewood, construction material, fencing material, etc., for the local populations. Within this coastal forest belt, every form of cutting is generally without intense control or restriction but a policy is being introduced whereby cutting in certain 'management areas' is controlled by Forest Service Officers. Approximately one half of the Crown forests are at present under management. Commercial timber-cutting on unoccupied Crown lands has been by permit since 1952; permits for amounts up to 120 cords per person are issued by the field staff but permits for larger quantities must be approved by the government.

The Island is divided into three forest regions, each of which is subdivided into five districts. Each region is under the control of a regional forester and each district is headed by a district ranger with a staff of rangers and assistant rangers. Twenty-four well-equipped forest fire depots and six lookout towers, connected by radiotelephone to district and regional offices, are operated by the Newfoundland and Labrador Forest Service; others are operated by the two paper companies which maintain their own forest fire protection organizations.

Forestry operations in Labrador are under the supervision of a regional forester located at Happy Valley (Goose Airport). Forest fire protection bases are located near Goose Airport and at Labrador City, Churchill Falls and Cartwright.

The Forest Service operates eight fixed-wing aircraft for forest fire detection and suppression and four helicopters for transporting men and equipment. The permanent Forest Service staff of approximately 130 persons is enlarged during the fire season with the addition of about 70 seasonal employees.

**Prince Edward Island.**—Roughly one third of Prince Edward Island's 2,184 sq. miles of land is tree-covered. The wooded areas consist of scattered patches throughout the province, the greatest concentration being in the eastern section. All of the woodland is privately owned except some nine square miles of provincial forested Crown land.

The Forestry Branch of the Department of Agriculture administers all forestry matters in the province—reforestation, protection and woodlot improvement. The reforestation program has been increasing year by year, as many as 500,000 trees being planted in one year on provincially owned and privately owned land. The Forest Nursery is being expanded and by 1975 will be providing some 6,000,000 trees annually.

The forest management programs include the provision of access roads into Crown land areas and woodlot improvement; improvement cuts act as demonstration areas for the public and for 4-H Forestry Clubs and Boy Scout and Girl Guide groups. Fire protection is not too serious a problem in this province as wooded areas are relatively small and scattered and are all accessible by road so that equipment can be rushed to the scene of a fire quickly and easily.

**Nova Scotia.**—Of Nova Scotia's land area of 20,402 sq. miles, 15,555 sq. miles are classed as forested and most of the forested land is considered suitable for regular harvesting.

Although 91 p.c. of the forest land in Canada is held by the Crown in the right of the federal and provincial governments, only 22 p.c. is so held in Nova Scotia. To promote education and dialogue among various forest users, representative county Forest Practices Improvement Boards are being set up.

The provincial Crown lands are administered by the Department of Lands and Forests through a staff of foresters and rangers. Trained provincial personnel are also employed with some of the forest industries in the administration of privately owned forest lands. The Department administers the Lands and Forests Act as it pertains to all lands, and is responsible for forest fire suppression. Forest fire detection is facilitated through 35 observation towers and a six-plane aerial patrol service. In 1970, 450 forest fires burned 1,767 acres. Three fires exceeded 100 acres, and 32 p.c. were under one-quarter acre. Fire suppression crews and rangers with equipment are stationed throughout the province.

The forest industry is of prime importance to the economy of Nova Scotia, contributing directly or indirectly over \$100,000,000 to the gross provincial product annually. There are in operation some 350 sawmills of various types and sizes, one hardboard mill, one newsprint mill, two groundwood pulp mills, and two chemical pulp mills. These mills accounted for 197,000 M ft. b.m. of sawn materials and 954,000 cords of pulpwood in 1970, including 126,000 cords-equivalent of pulp chips from sawmill residues. In addition, 98,000 cords of pulpwood were exported and 9,000 cords of pit props, poles and pilings were produced.

The reforestation program, active since the 1930s, is being expanded. Experimental work on container planting, direct seeding, soil capability, and site preparation continues. Efforts are being made to improve seed sources. Seedbeds have been laid for a threefold increase to 3,000,000 seedlings by 1973.

Timber, pulpwood and Christmas trees are sold through public tender, and cutting on Crown lands is done under recommendation of resource managers of the Department of Lands and Forests. Management cruises, regeneration studies and experimental cuttings are conducted on Crown lands, and a program of operating these lands under sustained-yield management is under way. During 1970-71, 3,700 acres of Crown forest were thinned, fertilized and improved, bringing the total acreage of Crown silvicultural treatments to 29,000 since 1965.

A provincial forest inventory, a continuous system designed to operate on a seven-year cycle, was in its fourth year in 1970. A system of 1,750 permanent sample plots was completed to provide continuing data on growth and drain. Aerial colour photography, begun on Cape Breton Island in 1969, is being extended to the remainder of the province.

Forest research is carried on by Federal Government agencies and by the Nova Scotia Research Foundation. Investigations cover stand improvement, tree nutrition, cutting methods, and insect and disease activities. Extension projects include fire prevention, a motion picture program for schools, distribution of information on forest and wildlife conservation, promotion of the Christmas tree industry, a hunter safety program, woodlot improvement, preparation of material for the mass media, and technical assistance to sawmill operators.

**New Brunswick.**—Of the total land area of New Brunswick (27,835 sq. miles), approximately 87 p.c. is classed as forest land suitable for regular harvest of which the Crown, in right of the province, owns about 46 p.c. About 2 p.c. is owned by the Federal Government and the remainder is privately owned. The total volume of standing timber in the province is estimated at 16,868,000 M cu. ft.; coniferous species make up 71 p.c. and deciduous species the remainder.

Protection from forest fires, the first requirement for forest conservation, is mainly the responsibility of the Department of Natural Resources which also carries out duties in connection with game management and protection, provincial parks, mines, water, tourism and the administration of provincial Crown lands. A large-scale aerial spraying program to protect balsam fir and spruce from the spruce budworm has been carried on since 1952 by a Crown company sponsored by the federal and provincial governments and

by representatives of the forest products industries. Forest management licences authorize operators to cut and remove forest products in accordance with forest management plans and cutting permits. Royalty is paid to the province when products are cut by the licensees.

New Brunswick does not maintain a forest research organization but co-operates with the Canadian Forestry Service in that field. The University of New Brunswick has also undertaken a small number of forest research projects in co-operation with the National Research Council, the provincial government and other interested organizations.

In the field of education, the University of New Brunswick offers undergraduate and graduate courses in forestry leading to B.Sc.F. and M.Sc.F. degrees. It is also responsible for the administration of the Maritime Forest Ranger School in conjunction with the Governments of New Brunswick and Nova Scotia and with private industry. The forest extension services of the University assist both government and private agencies in the direction and planning of various forestry extension programs. The provincial Department of Agriculture and Rural Development also provides an expanding extension service to the owners of farm woodlots.

**Quebec.**—The forests of Quebec, which are of tremendous economic value to the province and to Canada, cover 268,480 sq. miles or about half of the territory of the province. They extend northward up to an irregular line roughly following the 52nd parallel of latitude in the eastern portion and the 54th parallel in the west.

These forests may be divided into two separate tenure groups—publicly owned forests covering 240,464 sq. miles, and privately owned forests totalling 28,919 sq. miles. Of the publicly owned forests, 103,252 sq. miles are "allocated to wood production", 87,164 sq. miles of that area being classed as fully stocked. Of the privately owned forest land, 25,931 sq. miles are classed as stocked. The publicly owned forests allocated to wood production and the stocked privately owned forests supply the province's pulp and paper mills and sawmills. Privately owned forests alone produce about 25 p.c. of the annual cut, which reaches close to 1,000,000 M cu. ft. Publicly owned forests are subjected to a general development plan to meet the ever-increasing demand for forest products.

The Woodlands and Forestry Branch of the Department of Lands and Forests is responsible for the management, development, control and supervision of publicly owned forests; in certain circumstances, and when required by the public interest, it also handles the development of privately owned forests. The Branch operates, throughout the province, a number of nurseries which provide the seedlings needed for reforesting areas where natural regeneration is inadequate. The nurseries have in stock about 100,000,000 seedlings.

The Conservation Branch, either directly or through various organizations, is responsible for the protection of forests against fires, insects and cryptogamic diseases.

Quebec's forests account for about 25 p.c. of the value of gross production in the province. The importance of such an economic input deserves intensive consideration and for this reason the Department of Lands and Forests periodically reviews its forestry program and keeps abreast of progress in all phases of forestry in order to assure the maximum yield from its forest wealth.

**Ontario.**—Forested land in Ontario amounts to 188,335 sq. miles,\* of which 180,424 sq. miles are classified as forest land, that is, bearing or capable of bearing timber of a commercial character suitable for regular harvest and not withdrawn from such use. About 90 p.c. of this forest land is owned by the Crown, administered and managed by the Ontario Department of Lands and Forests. This Department was reorganized as of Apr. 1, 1971, resulting in a head-office structure in which four major Divisions and one Branch (Research) report directly to the Deputy Minister. The Divisions and their constituent Branches are: Resource Products (Timber Sales, Timber Management, Commercial Fish and Fur, and Resource Economics); Land Management (Lands and Waters, Environmental Protection,

\* See footnote 1, Table 1, p. 652.



and Surveys and Engineering); Outdoor Recreation (Parks and Recreation Areas, Sport Fisheries, and Wildlife); Finance and Administration (Legal Services, Personnel Services, and Financial Management).

An objective of the changes was to provide greater and more convenient services to the public. Thus, there has been a considerable transfer of additional responsibility and authority to the three Regional Directors and to the 21 Forest Districts that make up the field organization. Specialists in the field correspond closely to the functions of head office.

The *Timber Sales Branch* arranges for the orderly sale of timber, a function carried out along traditional lines—operators are granted a licence to cut specified timber for which they pay stumpage at contractual rates on the measurement (scale) of products removed. However, the details and techniques of utilization are undergoing constant improvement. Ontario's forest-based industries have long been a Canadian leader in terms of diversity of products and value of shipments and, even though there is still a surplus of timber over actual cutting in the province, an effective management policy is operative to ensure the continuing supply of timber of the type required by industry. Continuing forest inventories, using aerial photographic methods in which the province pioneered, provide an up-to-date record of the forest wealth, showing the species and other characteristics of stands and their geographical distribution. Inventory data are then applied to management planning; the province has been divided into 205 management units, each homogeneous with respect to forest and use patterns. Long-term plans set out regulations on the volume and location of cuttings and include programs for regeneration and tending that will sustain yields. As of 1971, 196 plans (79 Crown Units, 57 Company Units and 60 Agreement Forests) were either completed or in process of completion for approximately 197,000 sq. miles.

The *Timber Management Branch* is responsible for the regeneration, tending and improvement of the forests on Crown lands, Municipal and Conservation Authority Agreement lands and Private Agreement lands. In addition, the Branch has the important task of promoting forestry on privately owned lands through its extension program. The three main pieces of enabling legislation in this regard are the Forestry Act, the Woodlands Improvement Act and the Trees Act.

The Branch operates 10 forest tree nurseries (with supporting tree seed collection, treatment and storage plant) currently geared for an annual output of about 100,000,000 units. Complementing this are up-to-date tree improvement and nursery soil management programs. The Department, directly or indirectly, supervises all planting projects on Crown lands but regeneration agreements have been signed with all major licensees whereby they assume responsibility for the conduct of planting projects, receiving payment at an agreed rate for work completed. Other projects, such as site preparation for the planting, may be performed by the companies under the same agreement.

During 1970, 50,700,888 nursery-produced trees were planted on about 71,253 acres of Crown and Agreement lands, and 7,364,000 tubed seedlings were planted on about 7,997 acres. Other silvicultural treatments included the direct seeding of 20,392 acres, treatment for natural regeneration on 29,214 acres and stand improvement (cleaning, spraying, thinning, pruning, etc.) on 110,462 acres. In all, 239,318 acres of Crown and Agreement lands were silviculturally treated in 1970 to promote regeneration or to improve the forests.

For half a century, Ontario has had enabling legislation that permits municipalities and, within the past 20 years, conservation authorities to place abandoned and submarginal agricultural lands to which they have acquired title under agreement with the Department of Lands and Forests; the Department undertakes to plant and manage the properties for a specified period of between 20 and 50 years. Nearly 248,000 acres currently under such agreements have been managed intensively and the older plantations are receiving regular thinnings. The trees removed are in demand for pulpwood, posts, poles and sawlogs, making the undertakings financially attractive. In addition, the properties that are close to centres of population have acquired tremendous value as recreational areas.

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Owners of private land may purchase planting stock for forestry purposes from government nurseries at nominal prices and may also receive free professional advice on any forestry matter, including silviculture, harvesting and marketing. In 1970 (spring and fall), planting stock furnished for private lands totalled 16,339,867 units and 41,964 units were furnished for educational and scientific purposes. Under the Woodlands Improvement Act, it is possible to have planting and improvement work carried out completely under government direction and mainly at public expense. In return, the owner is required to meet a few modest demands that ensure his good faith. Since its inception in 1966, the program has provided assistance for 112,071 acres (as of Apr. 1, 1971) of privately owned land of which 67,952 acres have been planted or improved, and 44,119 acres covered by management prescriptions only for future silvicultural requirements or harvest. During 1970-71 alone, 13,606 acres were either planted or improved.

The area under organized forest protection in Ontario totals 180,275 sq. miles and includes the main central band of accessible forests. This area is organized into 20 fire districts and subdivided into 50 chief ranger divisions. South of this area, in the highly developed agricultural counties, the municipalities are responsible for fire control. The vast inaccessible areas to the north of the fire districts, totalling over 134,000 sq. miles, do not support significant stands of merchantable timber and, except for communities or other special values, are not protected. Within the fire districts, agreements were in effect in 1970 with 220 municipalities for the prevention and control of forest fires. An agreement was also in effect with the Federal Government for the protection by the Ontario Department of Lands and Forests of 958,000 acres of Indian lands in the province.

Organized forest fire detection is accomplished by aerial patrol or combined aerial patrol and lookout tower systems, although towers are quickly being phased out in favour of aircraft. Public reporting of forest fires (unorganized detection) continues to be an important and very necessary part of the over-all detection program. The basic fire-fighting strike force comprised 135 trained, five-man fire crews and 38 water-bombing aircraft. These forces made the initial attack on 1,075 of the 1,239 fires in 1970. The public, municipal firemen, and forest industry personnel initially attacked 164 fires. Work with long-term fire retardant chemicals indicates that they can be useful in fire control operations in

Ontario; operational adoption, phased over the next two to three years, is planned. Prescribed burning as a silvicultural and hazard reduction tool was continued in 1970 with 15 burns covering 6,700 acres.

An integral float tank water-bombing system is installed on Department float-equipped aircraft. The aircraft fleet, as of Jan. 1, 1971, comprised 26 Turbo Beavers, 10 Otters, three Twin Otters, one Beechcraft Duke and one Beechcraft KingAir 100; five Bell G-4 helicopters were leased during the fire season. The communications system included 186 ground stations, 277 lookout tower radios, 20 patrol vessel radiotelephones, 674 mobile radiotelephones, 1,344 portable fireline radios, 41 aircraft radio installations and 74 portable aircraft radiotelephones.

Forest pest problems in 1970 were again dominated by the spruce budworm which infested almost 7,000,000 acres but spraying operations to control this insect were limited to 23,000 acres, involving four separate high-value local areas. Smaller acreages on Crown-owned and Crown-managed areas totalling 16,000 acres were also treated for White Pine weevil, pine and spruce sawflies, white grubs, White Pine blister rust, annosus root rot, and mice.

**Manitoba.**—The administration of the provincial Crown forest lands of Manitoba falls within the purview of the Department of Mines, Resources and Environmental Management which consists of a Resources Management Division, a Mines and Departmental Services Division, an Environmental Management Division, and an Air, Radio and Technical Services Division. A special planning section, directly under the Deputy Minister in conjunction with the Resources Management Division, has the responsibility for developing short- and long-range forestry plans and programs relating to the forest inventory, timber utilization and industrial development, reforestation, silviculture and forest protection.

The Research Branch of the Environmental Management Division undertakes the necessary practical research for the qualitative development of these programs and the various projects and activities within them. The Branch co-operates with several federal services which maintain two research areas in the province, and works closely with federal authorities in investigating and controlling forest damage resulting from insects and diseases.

The Resources Management Division is charged with the administration of the Forest Act and Regulations, and the implementation of forestry programs and projects developed. It also provides considerable input with respect to plans developed for specific areas within the four established administrative regions into which the province is divided. Each region is under a Regional Director who is responsible for the field administration of the forests and other resources in his region. He works under policy guidelines established by head office which co-ordinates control measures for the propagation, improvement and management of the forests, for the harvest of forest products, and for forest inventory surveys. A provincial forest nursery is maintained to supply stock for reforestation of denuded Crown land and some natural seed areas have been established for nursery stock. Seedlings are supplied to farmers for shelterbelts and woodlots and to commercial Christmas-tree producers and an average of more than 5,000,000 are planted each year in reforestation projects on Crown lands. The program of forest stand improvement comprises thinning, clearing and chemical spraying to remove undesirable species and encourage growth of preferred trees. Forest inventories cover about 10,350 sq. miles annually and, on the basis of these inventories, working plans with annual allowable cuts on a management unit basis are in operation.

Timber-cutting rights are awarded by Forest Management Licences, Timber Sales and, in certain cases (particularly for salvage operations), by Timber Permits. Forest Management Licences may be granted for periods of up to 20 years and are renewable; Timber Sales may be for varying periods from one year upward and Timber Permits for periods of up to one year. In 1971, one long-term Pulpwood Berth with an area of 2,745 sq. miles



and a second, signed in 1966, covering the construction of a pulp mill and sawmill at The Pas in northern Manitoba, were in force together with 10 long-term Timber Berths, all granted prior to 1930.

There are 128,370 sq. miles of the province under forest fire protection, with zones of priority established in the less accessible areas. Fires are detected through a comprehensive network of lookout towers and supporting air and ground patrols, all in communication by radio and departmental or public telephones. Two Canso water-bombers and three helicopters are rented for the fire season to supplement the 10 aircraft of the Manitoba Government Air Service.

Public education in the fields of fire prevention and forest conservation is carried out and use is made of radio, television, newspapers, pamphlets, signs, film tours and talks.

The Mines and Departmental Services Division provides accounting and clerical services for the two previously described divisions, and is responsible for the issuance of permits, licences and leases, relative to forestry projects and activities. The Air, Radio and Technical Services Division provides surveys, air service and other technical assistance as required.

**Saskatchewan.**—The forests of Saskatchewan, located in the northern half of the province, cover 40,500 sq. miles, of which area almost 34,000 sq. miles are suitable for regular harvest. Provincial forests constitute approximately 92 p.c. of all forest land in the province and are managed and developed by the Forestry Branch of the Department of Natural Resources.

The Forestry Branch, consisting of three Sections—Forest Management, Inventory and Silviculture—has the function of developing and evaluating forest policies and management programs and such policies and programs are carried out by the various regional administrative authorities. For purposes of resource administration, the province is divided into five regions, each under the supervision of a regional superintendent. The regions are subdivided into conservation officer districts which vary in size according to resource base and population to be served. Close liaison is maintained between the Forestry Branch and the various regional authorities.

Development of techniques in prevention, detection and suppression of forest fires is a function of the Forest Protection Branch which is comprised of three Sections—Fire Control, Heavy Equipment and Communications. A network of 75 lookout towers equipped with two-way radios is maintained throughout the province and is supplemented by aircraft on regular patrol duty during high-hazard periods. The Department of Natural Resources communication system is being converted to V.H.F. Approximately 1,400 two-way radio sets, operated in towers, vehicles, aircraft and bush camps, are used for the detection and suppression of forest fires and available for aerial assistance are three helicopters and seven fixed-wing aircraft capable of water-dropping. Outside help may be requested when available and necessary.

**Alberta.**—The 106,754 sq. miles of forest land in Alberta are administered by the Alberta Forest Service of the Department of Lands and Forests with Head Office at Edmonton. The Service, headed by the Director of Forestry, is composed of six Branches—Administration, Timber Management, Forest Protection, Construction and Maintenance, Land Use and Training. The forest area is divided into 11 Forests, each responsible for the forest within its boundaries and under the jurisdiction of a superintendent supported by a number of specialists in areas of timber management, fire, land use, construction and communications, and by a clerical staff and a complement of casual employees. These Forests are further subdivided into Ranger Districts, each supervised by a district forest officer responsible to the superintendent. A district forest officer may have several assistant rangers and other staff under his charge.

The Administration Branch supervises all Branches in maintaining general control over revenue and expenditure, equipment inventory and personnel. The general administrative policies of the Service are formulated by this Branch.

The function of the Timber Management Branch includes implementation and supervision of the timber quota system, acceptance and approval of management and annual operating plans prepared for leased and licensed Crown lands, preparation and execution of forest management plans, and disposal of Crown timber. The Branch also carries on silvicultural programs, processes applications, takes inventories of forest resources, inspects cutting areas to ensure proper logging and utilization practices, and collects dues and fees.

The Forest Protection Branch is in charge of all phases of protection including prevention, detection and suppression of wild fires. This Branch includes a number of specialists such as a meteorologist, a communications officer and a special Aircraft Dispatch Section to assist in the over-all protection program.

The Construction and Maintenance Branch constructs and maintains all road, airstrip and building facilities within the area of the Service's jurisdiction.

The Forest Land Use Branch is responsible for the planning and supervision of the proper land-use practices in the forested area, including grazing, recreation and watershed management, particularly on the east slopes of the Rocky Mountains containing the two Saskatchewan Rivers. The Forestry Training Branch provides facilities and instructions for the second year of a two-year forest technology course given by the Northern Alberta Institute of Technology. It also conducts in-service training programs for all the Branches in the Forest Service.

Basic research in all phases of the forestry program is generally carried out by the Canadian Forestry Service. A new federal research laboratory has been completed in Edmonton to increase the research service that is provided.

**British Columbia.**—Of the 366,255 sq. miles in British Columbia, somewhat over 215,743 sq. miles are inventoried as forest land.\* This includes 268,635,000 M cu. ft. of mature merchantable timber, most of it coniferous species.

For administrative purposes, the province is divided into five Forest Districts with regional headquarters at Vancouver, Prince Rupert, Prince George, Kamloops and Nelson. Further decentralization of authority is effected by subdivision into Ranger Districts, of which there are approximately 22 in each Forest District. Ten directional, servicing or policy-forming Divisions constitute the Head Office of the Forest Service at Victoria.

Efforts continue to bring British Columbia's forest resources under sustained-yield management and the forest industries are making progress toward more complete utilization of their raw materials. The problem is urgent despite the fact that, with a present annual scale of approximately 1,900,000 M cu. ft. (1970), the total inventory would appear sufficient to support current needs in perpetuity. One of the more spectacular results of sustained-yield administration has been the swinging of a greater proportion of the annual forest harvest to the interior of the province. In 1970, the over-cut coast (wet belt) forests accounted for about 52.7 p.c. of the total forest cut and the interior for 47.3 p.c. For all practical purposes, the entire interior forest is publicly owned; a large proportion of the privately owned, leased or licensed forests are on the coast.

Several systems of timber disposal are in effect. The Tree Farm Licence is a contract between the government and a company or individual whereby the latter agrees to manage, protect and harvest an area of forest land, including any privately held forest land, on a sustained-yield basis. Tree Farm Licences are subject to re-examination for renewal every 21 years. Public Sustained-Yield Units are areas within which the Forest Service manages the Crown timber on a sustained-yield basis. Within the Public Sustained-Yield Units, recognized established logging operators can apply for Timber Sale Licences or Timber

\* See footnote<sup>1</sup>, Table 1, p. 652.

Sale Harvesting Licences which entitle them to log at a given rate per year, based on a number of factors including the operator's average rate of production at the time the unit was established.

Forest fire prevention techniques and organization for effective forest fire suppression are vital aspects of planned sustained-yield management. A greatly expanded pulp industry, added to the long-established logging and sawmill industries, has increased the necessity for more adequate fire control. Extensive use is made of aircraft under various terms of contract. Air tankers and fire-spotter aircraft are employed during the fire season and helicopters and other aircraft are employed under contract for patrol duties and for the transport of fire suppression crews. The rugged topography and the many remote and sparsely populated areas of the province demand the availability of a variety of transportation methods to tie in with early discovery of and attack on forest fires.

Close liaison with the Forestry Branch of the federal Department of the Environment through facilities at Victoria provides detailed information on insect and fungal enemies of the forest and on fire research.

### **Subsection 3.—The Pulp and Paper Research Institute of Canada**

The Pulp and Paper Research Institute of Canada is a centre of research and learning concerned with virtually every aspect of the production and use of pulp and paper products. It was established in 1913 as a branch of the Dominion Forest Products Laboratories and in 1927 was reorganized under the joint sponsorship of the Canadian Pulp and Paper Association, the Federal Government and McGill University. The Institute staff carries out fundamental research and some applied research in the fields of woodland operations and pulp and paper mill operations. In addition, in co-operation with McGill University, it trains postgraduate students who are working toward master's and doctorate degrees in physical chemistry, wood chemistry, or chemical and mechanical engineering, and whose theses subjects lie in fields of interest to the pulp and paper industry.

The Institute's head office and main laboratories are located in Pointe Claire on the western outskirts of Montreal in a recently enlarged building constructed by the Government of Canada. Space provided by the University is also occupied on the campus of McGill University by Institute staff and students involved in the graduate education program. The Institute's facilities include: organic and physical chemistry, physics and engineering laboratories; pilot plants for chemical pulping, pulp and chip refining and waste liquor pyrolysis; a greenhouse and other facilities for woodlands research; an extensive library; shops and special facilities for pulp and paper testing and for photographic and microscopic (both light and electron) studies of wood, pulp and paper. It has a staff of about 200.

The Institute's research activities comprise a basic program in pulp and paper research and in woodlands research, contract research, and technical services. The basic pulp and paper research program is supported by assessments from the Maintaining Membership (48 companies, representing more than 100 mills and about 95 p.c. of the total production of the Canadian industry). The woodlands research program is supported by assessments on all member companies of the Canadian Pulp and Paper Association east of the Rockies that use pulpwood. Both programs comprise research of interest to the industry broadly, as distinct from that which is the concern of a single company only.

The projects in the research program range from studies of the growing seedling in the forest to the converted pulp and paper product, and are directed at seven broad research goals: reduction of wood cost, reduction of fibre cost, reduction in capital and operating costs, testing and process control, products research, reduction of environmental pollution, and basic knowledge. The Institute is regarded as a centre for broad, long-range and uninterrupted studies of basic principles and for major engineering research and development projects which individual pulp and paper companies would find difficult to justify if



the costs were not shared. Moreover, the Institute is a centre of highly specialized equipment and manpower which individual companies would not normally have.

In addition to its permanent staff, the Institute, in co-operation with McGill University, has some 45 graduate students working on fundamental projects in the background of pulp and paper technology, which also serve as their theses topics. The E. B. Eddy Professor of Industrial and Cellulose Chemistry at McGill, who is also a staff member of the Institute, directs graduate student work on such subjects as the behaviour of the materials of which wood is made—cellulose, lignin and hemicelluloses. The Director of the Institute's Applied Chemistry Division, also a Professor in the McGill Chemistry Department, supervises graduate student work in polymer, surface and colloid chemistry with particular reference to those aspects that pertain to the physics and chemistry of pulp and paper. An Associate Professor of Chemical Engineering at McGill, who is a consultant to the Institute, directs graduate students in a variety of chemical studies. In addition, the Director of the Institute's Applied Physics Division, who holds a teaching appointment in McGill's Department of Mechanical Engineering, supervises graduate student investigations on such subjects as supercalendering of paper and frictional processes in polymeric systems. Other staff members who hold concurrent honorary positions at McGill as Research Associates assist in this student program.

The Institute undertakes contract research projects on a cost-reimbursement basis for individual companies or groups of companies in the pulp and paper or allied fields. The larger of these co-operative contracts have been concerned with problems of particular segments of the Canadian pulp and paper industry. The Institute also provides a broad range of technical information services to the industry and, to some extent, to other industries and the public. It maintains a specialized library for this purpose which stocks bibliographies, abstracts, translations and critical reviews for the use of the scientific staff and the industry.

## PART II.—FISHERIES\*

Following a period of rapid expansion and intensification of fishing effort by fleets of many nations, the fisheries resources within range of Canadian fishing vessels have shown evidence of approaching peak production levels; for some species those levels have already been surpassed. As a consequence, conservation of commercially valuable species is a subject of vital concern to Canada, and has spurred both domestic and international initiatives to curb the trend toward over-exploitation.

Canada's commercial fisheries on the Atlantic Coast concentrate upon large stocks of cod, flatfishes and herring, as well as valuable shellfish resources, notably lobsters, oysters and scallops; Pacific Coast fisheries depend mostly on salmon and halibut; herring stocks, once plentiful, are recovering from a sudden, sharp decline in the late 1960s which necessitated closure of the fishery except for catches used as human food. Large freshwater lakes in Canada's interior produce important supplies of whitefish, sauger, yellow perch, lake trout and other species.

### Section 1.—Fishery Statistics

The following brief review of commercial fishing and marketing covering the situation in 1970 contains estimated figures for that year. At the time of the preparation of this Chapter, however, the latest statistics available in detail for both the primary production and fish products were for 1969 and these are contained in Subsections 1 and 2.

**Fish Landings and Marketing in 1970.**—The total Canadian catch by some 65,000 fishermen in 1970 approximated 2,600,000,000 lb. valued at \$205,000,000. Although the quantity of commercial fish and shellfish landed was slightly lower than in 1969, the value

\* The introduction and parts of Section 1 and Section 2 were prepared by the Information and Consumer Branch, Canadian Fisheries Service, Department of the Environment, Ottawa.

was \$27,000,000 higher. During the year, Atlantic Coast fishermen landed 2,300,000,000 lb. with a value at point of first sale of \$131,000,000, compared with 2,400,000,000 lb. valued at \$121,000,000 in 1969. Each of the Atlantic Provinces except Nova Scotia received a share of the higher value—although the catch of most significant species decreased, the unit prices paid to fishermen were at record levels.

On the Pacific Coast, the quantity landed in 1970 was 238,000,000 lb., valued at \$60,300,000, a substantial advance over 1969 when only 174,000,000 lb. were landed valued at \$47,400,000. Higher quantities of all species of salmon brought the total value to a record \$45,000,000 but the value of the halibut fishery was down from its record in 1969 of \$14,400,000 to \$10,600,000 as prices to fishermen dropped from an average of 42.5 cents to 35.9 cents a pound.

The 1970 inland fisheries landings were estimated at 106,000,000 lb. valued at \$13,500,000, a 12-p.c. decrease in quantity and a 7-p.c. decrease in value compared with 1969. This drop resulted largely from the closure of a number of lakes to fishing and to the curtailment of fishing for certain species in other areas because of mercury contamination.

The 1970 marketed value of all Canadian fishery products was estimated to be above \$400,000,000, an amount that would surpass the 1968 record by some \$15,000,000. Of the total output, by value, about 70 p.c. was exported; three quarters of these exports went to the United States and about 20 p.c. to Europe. Fish product imports into Canada in 1970 went up by 22 p.c. over 1969; about half of these imports were of shrimp and tuna.

Because of the reduced landings of groundfish on the Atlantic Coast, the production of fillets and blocks dropped from 263,000,000 lb. in 1969 to 236,000,000 lb. in 1970. The decline was general for all species of blocks and fillets with the exception of flounder fillets. There was no difficulty in marketing any of the groundfish products during the year. Demand, reflected in high prices and lower stocks, outstripped supply. Production of salted groundfish continued its downward trend. About 80,000,000 lb. were put to salt, 10 p.c. less than in the previous year. However, market demand was good and prices remained high, giving record returns to the fishermen. The output of fishmeal on the Atlantic Coast during 1970 was also down by 12 p.c. The 80,000 tons of herring meal produced was 13 p.c. less and the 44,000 tons of groundfish meal produced was 6 p.c. less than in the previous year.

The Pacific salmon pack in 1970, at 1,423,476 cases, was 8 p.c. above the 1965-69 average annual pack. The pack of pink salmon (21 p.c. above average) and of chum salmon (90 p.c. above average) more than compensated for a reduced pack of sockeye, spring and coho. The export price of canned pink salmon remained the same as in 1969 but the export prices for the other three species were up more than 10 p.c.

### Subsection 1.—Primary Production

Landings for 1969 of all species of fish, both inland and sea (including such non-fish items as whales, seaweed, seals, bait worms, etc.), totalled more than 2,700,000,000 lb., having a landed value of \$178,400,000.

The value of the catch on the Atlantic Coast was \$115,500,000, an increase of 4.0 p.c. over the 1968 value of \$111,100,000. Of all species landed, lobster was the most valuable at \$29,500,000, followed by cod at \$21,600,000 and scallops at \$12,200,000. The value of the Newfoundland catch was up from the 1968 figure of \$28,000,000 to \$29,500,000 in 1969, the increase being accounted for mainly by the greater landings of catfish, haddock, flounder and sole, and herring. The value of the Nova Scotia catch reached a new high in 1969 at \$54,000,000. Lobster, at \$14,900,000, was the most important species from the standpoint of income to fishermen and scallops, at \$10,300,000, were second, followed by cod, haddock, swordfish, herring, and flounder and sole. New Brunswick fishermen also enjoyed a record catch, its value at \$15,900,000 being 2.5 p.c. higher than the 1968 value of \$15,500,000. The value of lobster increased from \$4,000,000 in 1968 to \$5,200,000 in 1969 to become the major source of income to New Brunswick fishermen. Herring was next at \$4,600,000,

followed by queen crabs at \$1,300,000. Returns to Prince Edward Island fishermen were also at a new high and lobster, at \$5,400,000, made up 71.0 p.c. of the total landed value of \$7,600,000. The Irish moss fishery was second at \$1,200,000 followed by scallops, cod, oysters and hake.

Quebec landings increased in value to \$9,100,000 from \$8,500,000 in 1968. The main species landed were cod valued at \$2,500,000, redfish at \$1,600,000, and lobster at \$1,600,000. The inland fishery in Quebec contributed about \$500,000 to the total landed value.

The landings of fish from the inland waters of Ontario, the Prairie Provinces, Yukon Territory and the Northwest Territories were, together, valued at \$15,000,000, an increase of nearly 22 p.c. over the \$12,300,000 of 1968.

British Columbia landings, at \$47,400,000, were again substantially lower in value than the all-time high of \$60,700,000 reached in 1966. This decrease was caused mainly by the large drop in the salmon landed on the Pacific Coast, which had a value of \$44,900,000 in 1968 but only \$27,800,000 in 1969. The disappearance of herring from British Columbia waters also contributed to the decrease.

### 1. Quantity and Value of Sea and Inland Fish Landed, by Province, 1965-69

Province or Territory	1965	1966	1967	1968*	1969
QUANTITY					
	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 lb.
Newfoundland	616,661	679,787	791,375	961,350	1,009,004
Prince Edward Island	46,241	58,171	44,526	46,995	49,037
Nova Scotia	592,350	706,344	693,406	795,421	673,306
New Brunswick	296,441	350,129	358,411	540,370	518,409
Quebec	145,176	146,609	192,134	204,520	196,843
Ontario	52,486	56,344	54,656	55,707	63,205
Manitoba	29,588	29,933	20,841	25,734	21,387
Saskatchewan	14,933	14,027	11,725	10,970	13,915
Alberta	8,514	10,907	9,914	11,883	10,991
British Columbia <sup>1</sup>	626,161	574,920	332,783	267,239	173,983
Yukon and Northwest Territories	5,670	4,362	4,344	4,296	4,658
<b>Totals</b>	<b>2,434,221</b>	<b>2,631,533</b>	<b>2,514,115</b>	<b>2,924,485</b>	<b>2,734,738</b>
Sea fish	2,314,775	2,509,923	2,407,459	2,814,071	2,618,856
Inland fish	119,446	121,610	106,656	110,414	115,882
VALUE					
	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland	23,176	25,886	28,116	28,007	29,455
Prince Edward Island	6,825	5,998	6,967	7,399	7,566
Nova Scotia	48,194	46,738	45,401	52,250	54,021
New Brunswick	10,651	11,136	10,877	15,487	15,874
Quebec	6,938	7,278	7,743	8,544	9,145
Ontario	6,402	5,995	5,988	5,968	7,389
Manitoba	4,370	4,788	2,527	3,276	3,354
Saskatchewan	1,734	1,706	1,163	1,382	2,294
Alberta	677	844	758	917	935
British Columbia <sup>1</sup>	47,435	60,659	48,971	57,274	47,381
Yukon and Northwest Territories	994	792	842	781	1,035
<b>Totals</b>	<b>157,396</b>	<b>171,820</b>	<b>159,353</b>	<b>181,285</b>	<b>178,449</b>
Sea fish	142,424	156,966	147,522	168,422	162,906
Inland fish	14,972	14,854	11,831	12,863	15,543

<sup>1</sup> Includes halibut landed in United States ports.



## 2.—Quantity and Value of the Chief Commercial Fish Landed, 1968 and 1969

NOTE.—Excludes quantities and values of non-fish items such as whales, seaweed, seals, bait worms, etc.

Area and Species	Quantity Landed		Value Landed	
	1968 <sup>a</sup>	1969	1968 <sup>a</sup>	1969
	'000 lb.	'000 lb.	\$'000	\$'000
<b>Atlantic Coast</b>				
<b>Groundfish</b> .....	<b>1,235,275</b>	<b>1,202,811</b>	<b>49,354</b>	<b>49,589</b>
Catfish.....	6,971	7,573	235	258
Cod.....	593,543	540,318	24,348	21,569
Flounder and sole.....	235,077	300,318	8,061	11,958
Haddock.....	91,113	81,287	6,852	6,778
Hake.....	11,545	11,985	360	436
Halibut.....	3,992	3,594	1,560	1,473
Pollock.....	33,520	29,533	1,144	984
Redfish.....	214,822	213,194	5,548	5,751
Other.....	44,692	15,009	1,246	382
<b>Pelagic and Estuarial</b> .....	<b>1,218,226</b>	<b>1,135,590</b>	<b>20,972</b>	<b>20,117</b>
Alewives.....	7,081	3,650	132	84
Herring.....	1,155,165	1,073,815	11,986	11,202
Mackerel.....	24,533	29,280	998	1,099
Salmon.....	4,634	4,291	2,330	2,005
Smelts.....	3,770	4,417	373	382
Swordfish.....	7,337	7,108	3,729	4,105
Other.....	15,706	13,029	1,424	1,240
<b>Molluscs and Crustaceans</b> .....	<b>76,513</b>	<b>87,095</b>	<b>40,257</b>	<b>45,120</b>
Clams.....	5,519	7,496	382	562
Lobsters.....	37,310	40,167	24,450	29,527
Oysters.....	3,084	2,835	602	518
Scallops.....	15,648	12,809	13,407	12,202
Other.....	14,952	23,788	1,416	2,311
<b>Other<sup>1</sup></b> .....	<b>16,818</b>	<b>19,377</b>	<b>565</b>	<b>699</b>
<b>Totals, Atlantic Coast</b> .....	<b>2,546,832</b>	<b>2,444,873</b>	<b>111,148</b>	<b>115,525</b>
<b>Pacific Coast</b>				
<b>Groundfish</b> .....	<b>59,143</b>	<b>58,913</b>	<b>9,631</b>	<b>16,310</b>
Cod (gray).....	11,353	7,573	778	532
Halibut <sup>2</sup> .....	29,390	33,837	7,348	14,400
Ling cod.....	6,317	4,960	629	520
Sablefish.....	889	584	204	139
Flounder and sole.....	10,190	10,649	629	639
Other.....	1,004	1,310	43	80
<b>Pelagic and Estuarial</b> .....	<b>193,269</b>	<b>98,721</b>	<b>45,859</b>	<b>29,027</b>
Herring.....	6,373	4,416	231	221
Salmon.....	176,354	79,037	44,889	27,810
Chum.....	56,496	13,390	4,951	2,803
Coho.....	29,994	16,710	10,449	6,355
Pink.....	54,826	13,218	6,996	2,225
Sockeye.....	41,206	23,977	15,632	9,343
Spring.....	13,611	12,600	6,795	7,041
Other.....	221	142	66	43
Other.....	10,542	15,268	739	996
<b>Molluscs and Crustaceans</b> .....	<b>14,743</b>	<b>16,349</b>	<b>1,778</b>	<b>2,044</b>
Clams.....	1,499	1,283	98	98
Crabs.....	4,372	3,711	787	682
Oysters.....	7,236	9,130	562	720
Shrimps and prawns.....	1,568	2,124	320	529
Other.....	68	101	11	15
<b>Other<sup>1</sup></b> .....	<b>84</b>	<b>—</b>	<b>6</b>	<b>—</b>
<b>Totals, Pacific Coast</b> .....	<b>267,239</b>	<b>173,983</b>	<b>57,274</b>	<b>47,361</b>

<sup>a</sup>For footnotes, see end of table, p. 682.

## 2.—Quantity and Value of the Chief Commercial Fish Landed, 1968 and 1969—concluded

Area and Species	Quantity Landed		Value Landed	
	1968 <sup>1</sup>	1969	1968 <sup>1</sup>	1969
	'000 lb.	'000 lb.	\$'000	\$'000
<b>Inland</b>				
<b>Freshwater Fish</b> .....	<b>109,750</b>	<b>115,344</b>	<b>12,678</b>	<b>15,387</b>
Bass.....	819	926	276	293
Catfish.....	1,008	1,065	211	223
Herring, lake (cisco), and tullibee.....	12,898	12,006	675	703
Perch.....	25,625	31,110	2,161	3,377
Pickarel (yellow).....	8,524	7,663	2,451	2,820
Pike.....	9,514	8,245	673	635
Saugers.....	4,053	2,578	678	725
Smelts.....	12,490	15,226	486	562
Sturgeon.....	206	224	174	195
Trout.....	2,390	2,274	481	573
Whitefish.....	18,300	20,552	3,757	4,566
Other.....	13,923	13,475	655	715
<b>Other<sup>2</sup></b> .....	<b>664</b>	<b>538</b>	<b>185</b>	<b>156</b>
<b>Totals, Inland</b> .....	<b>110,414</b>	<b>115,882</b>	<b>12,863</b>	<b>15,543</b>
<b>Grand Totals</b> .....	<b>2,924,485</b>	<b>2,734,738</b>	<b>181,285</b>	<b>178,449</b>

<sup>1</sup> Includes livers and scales.  
fish caught inland.

<sup>2</sup> Includes landings by Canadian fishermen in United States ports.

<sup>3</sup> Sea

## 3.—Persons Employed in the Primary Fishing Industry, by Province, 1967-69

Province or Territory	Sea Fisheries			Inland Fisheries		
	1967	1968	1969	1967	1968	1969
	No.	No.	No.	No.	No.	No.
Newfoundland.....	19,814	19,355	17,770	—	—	—
Prince Edward Island.....	3,369	3,301	2,965	—	—	—
Nova Scotia.....	12,589	13,108	11,717	—	—	—
New Brunswick.....	5,518	5,766	5,358	147	176	153
Quebec.....	3,920	4,179	5,121	674	766	735
Ontario.....	—	—	—	2,197	2,044	1,959
Manitoba.....	—	—	—	4,019	4,018	3,835
Saskatchewan.....	—	—	—	1,724	1,580	2,100
Alberta <sup>1</sup> .....	—	—	—	4,750	4,758	—
British Columbia.....	12,117	12,133	10,942	—	—	—
Yukon Territory.....	—	—	—	51	49	36
Northwest Territories.....	—	—	—	361	352	326
<b>Totals</b> .....	<b>57,327</b>	<b>57,842</b>	<b>53,873</b>	<b>13,923</b>	<b>13,743</b>	<b>9,144</b>

<sup>1</sup> Licences issued.

## Subsection 2.—Fish Products

According to commodity surveys conducted by Statistics Canada, the value of sea and inland fish products produced at all industrial levels, including the value to fishermen, amounted to \$389,930,000 in 1969, a figure little changed from that of 1968.

## 4.—Value of All Products of the Fisheries, by Province, 1965-69

Province or Territory	1965	1966	1967	1968 <sup>*</sup>	1969
	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland.....	51,340	60,051	54,867	62,682	72,255
Prince Edward Island.....	9,641	9,164	13,067	11,416	12,646
Nova Scotia.....	94,291	97,111	96,705	103,629	123,602
New Brunswick.....	46,255	45,268	45,307	61,320	65,594
Quebec.....	12,881	13,328	13,741	16,506	19,026
Ontario.....	7,202	6,744	6,738	11,936	14,778
Manitoba.....	7,331	7,082	4,011	7,255	6,700
Saskatchewan.....	3,222	3,413	2,317	2,769	4,587
Alberta.....	1,128	1,383	1,398	1,462	1,563
British Columbia and Yukon Territory <sup>1</sup> .....	89,898	123,715	104,490	124,093	87,852
Northwest Territories.....	1,411	1,225	1,259	893	943
<b>Totals<sup>2</sup>.....</b>	<b>310,178</b>	<b>357,694</b>	<b>329,963</b>	<b>389,890</b>	<b>389,930</b>
Products from the sea.....	288,963	335,639	313,641	364,497	360,249
Products taken inland.....	21,215	22,055	16,322	25,393	29,681

<sup>1</sup> Includes landings by Canadian fishermen in United States ports. <sup>2</sup> Totals are lower than the sum of provincial totals because duplications resulting from intershipments between provinces are removed.

5.—Marketed Value of All Products of the Fisheries,<sup>1</sup> by Area and Species, 1965-69

Area and Species	1965	1966	1967	1968 <sup>*</sup>	1969
	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Atlantic Coast</b>					
<b>Groundfish.....</b>	<b>105,354</b>	<b>113,023</b>	<b>101,463</b>	<b>105,901</b>	<b>123,360</b>
Catfish.....	329	605	456	801	919
Cod.....	50,038	49,310	44,226	49,034	50,845
Flounder and sole.....	17,100	18,257	17,288	16,956	26,267
Haddock.....	11,040	12,007	11,189	11,566	13,716
Hake.....	904	978	703	618	586
Halibut.....	1,907	1,613	2,059	1,816	1,707
Pollock.....	4,534	3,177	2,643	2,718	2,460
Redfish.....	8,309	11,694	10,549	12,541	16,335
Other.....	11,193	15,382	12,350	9,821	10,425
<b>Pelagic and Estuarial.....</b>	<b>27,939</b>	<b>41,555</b>	<b>46,918</b>	<b>57,894</b>	<b>55,673</b>
Alewives.....	285	186	207	253	260
Herring.....	6,935	16,623	20,820	27,170	28,285
Mackerel.....	1,861	2,098	2,553	2,236	2,215
Salmon.....	2,676	4,412	5,001	5,097	3,216
Sardines.....	11,553	12,458	8,817	14,394	10,770
Smelts.....	541	572	599	736	959
Swordfish.....	3,203	4,147	4,548	5,131	5,333
Other.....	885	1,059	3,473	2,877	4,635
<b>Molluscs and Crustaceans.....</b>	<b>56,843</b>	<b>47,064</b>	<b>48,177</b>	<b>62,617</b>	<b>76,361</b>
Clams.....	251	511	358	768	916
Lobsters.....	43,665	32,600	30,782	35,677	43,914
Oysters.....	827	919	980	1,227	1,210
Scallops.....	10,909	11,604	13,983	19,884	20,109
Other.....	1,191	1,430	2,074	5,061	10,212
<b>Other.....</b>	<b>8,955</b>	<b>10,316</b>	<b>12,629</b>	<b>13,962</b>	<b>17,011</b>
<b>Totals, Atlantic Coast.....</b>	<b>199,091</b>	<b>211,958</b>	<b>209,187</b>	<b>240,374</b>	<b>272,405</b>

For footnote, see end of table, p. 684.



**5.—Marketed Value of All Products of the Fisheries,<sup>1</sup> by Area and Species,  
1965-69—concluded**

Area and Species	1965	1966	1967	1968 <sup>2</sup>	1969
	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Pacific Coast</b>					
<b>Groundfish.....</b>	<b>16,264</b>	<b>17,851</b>	<b>13,354</b>	<b>15,168</b>	<b>21,236</b>
Cod (gray).....	1,853	1,837	1,590	1,900	1,818
Halibut <sup>2</sup> .....	12,607	13,536	9,144	10,301	16,716
Ling cod.....	724	798	801	996	919
Sablefish.....	321	451	591	349	274
Flounder and sole.....	676	1,126	1,091	1,411	1,370
Other.....	83	103	137	211	139
<b>Pelagic and Estuarial.....</b>	<b>64,415</b>	<b>98,713</b>	<b>86,166</b>	<b>104,721</b>	<b>62,146</b>
Herring.....	11,750	8,305	2,640	331	559
Salmon.....	52,073	86,572	79,769	99,973	57,994
Cbum.....	2,888	5,274	4,528	13,362	5,624
Coho.....	19,793	20,847	12,691	19,695	11,929
Pink.....	9,047	28,143	21,685	22,050	6,773
Sockeye.....	12,873	21,119	28,264	30,645	20,263
Spring.....	6,938	9,133	10,093	10,519	10,511
Other.....	1,134	2,056	2,508	3,702	2,894
Other.....	592	3,836	3,757	4,417	3,593
<b>Molluscs and Crustaceans.....</b>	<b>2,758</b>	<b>3,437</b>	<b>3,805</b>	<b>3,501</b>	<b>3,614</b>
Clams.....	295	383	420	222	226
Crabs.....	1,145	1,438	1,793	1,695	1,558
Oysters.....	706	964	803	787	856
Shrimps and prawns.....	595	641	748	733	944
Other.....	17	11	41	64	30
<b>Other.....</b>	<b>6,435</b>	<b>3,680</b>	<b>1,129</b>	<b>703</b>	<b>856</b>
<b>Totals, Pacific Coast.....</b>	<b>89,872</b>	<b>123,681</b>	<b>104,454</b>	<b>124,093</b>	<b>87,852</b>
<b>Inland</b>					
<b>Freshwater Fish.....</b>	<b>20,390</b>	<b>21,144</b>	<b>15,481</b>	<b>24,005</b>	<b>29,373</b>
Bass.....	499	12	310	579	556
Catfish.....	215	158	232	423	448
Herring, lake (cisco), and tullibee.....	908	851	779	1,134	1,125
Perch.....	3,063	2,287	2,794	4,342	6,753
Pickercel (yellow).....	4,577	5,272	3,222	5,063	5,458
Pike.....	1,025	1,051	1,094	1,889	1,551
Saugers.....	1,965	1,990	837	1,534	1,326
Sturgeon.....	242	213	181	363	400
Trout.....	810	865	802	824	1,045
Whitefish.....	5,876	5,563	4,474	6,532	8,111
Other.....	1,110	2,882	756	1,322	2,570
<b>Other.....</b>	<b>825</b>	<b>911</b>	<b>841</b>	<b>1,604</b>	<b>308</b>
<b>Totals, Inland.....</b>	<b>21,215</b>	<b>22,055</b>	<b>16,322</b>	<b>25,609</b>	<b>29,681</b>
<b>Grand Totals.....</b>	<b>310,178</b>	<b>357,694</b>	<b>329,963</b>	<b>390,076</b>	<b>389,935</b>

<sup>1</sup> Includes value of livers and liver products, ports.

<sup>2</sup> Includes landings by Canadian fishermen in United States

The annual output of canned salmon fluctuates considerably with the extent of the catch, as is shown in Table 6. This product has traditionally been the most important of the industry, but the demand for Atlantic Coast frozen groundfish fillets and blocks rose very rapidly in the 1960s and the value of these Atlantic products was higher than that of canned salmon every year from 1963 to 1966 and again in 1969.

## 6.—Pacific Coast Production of Canned Salmon, 1967-69

Species	1967		1968		1969	
	Quantity	Value	Quantity	Value	Quantity	Value
	cases <sup>1</sup>	\$'000	cases <sup>1</sup>	\$'000	cases <sup>1</sup>	\$'000
Chum.....	94,022	2,555	270,688	7,405	46,524	1,459
Coho.....	146,677	6,017	187,594	7,730	57,947	2,626
Pink.....	650,142	19,943	669,347	21,524	154,188	5,694
Sockeye.....	558,892	28,155	611,011	30,532	359,608	20,127
Spring.....	14,679	431	7,416	216	5,301	184
Steelhead.....	1,296	40	933	29	585	20
<b>Totals.....</b>	<b>1,465,708</b>	<b>57,141</b>	<b>1,746,989</b>	<b>67,436</b>	<b>624,153</b>	<b>30,110</b>

<sup>1</sup> 48 lb.

## 7.—Atlantic Coast Production of Frozen Fillets and Fish Blocks, 1967-69

Area and Species	1967		1968		1969	
	Quantity	Value	Quantity	Value	Quantity	Value
	'000 lb.	\$'000	'000 lb.	\$'000	'000 lb.	\$'000
<b>Newfoundland.....</b>	<b>100,440</b>	<b>24,871</b>	<b>126,341</b>	<b>30,693</b>	<b>137,770</b>	<b>38,021</b>
Cod.....	40,916	9,338	67,035	15,014	65,547	15,403
Haddock.....	1,249	382	763	241	1,499	611
Redfish.....	16,402	3,739	17,024	3,853	19,629	4,927
Flatfish.....	29,347	8,593	31,593	9,017	49,779	16,414
Other.....	12,526	2,819	9,926	2,568	1,316	666
<b>Maritimes.....</b>	<b>96,892</b>	<b>26,099</b>	<b>98,648</b>	<b>27,229</b>	<b>96,199</b>	<b>32,787</b>
Cod.....	29,298	7,271	33,681	7,850	30,050	8,151
Haddock.....	23,155	7,381	19,903	7,094	18,222	8,537
Redfish.....	13,688	2,978	18,764	4,410	20,118	5,647
Flatfish.....	20,348	6,141	25,240	7,834	18,161	8,423
Other.....	10,403	2,328	1,060	41	9,648	2,029
<b>Quebec.....</b>	<b>24,827</b>	<b>4,842</b>	<b>31,939</b>	<b>6,747</b>	<b>29,318</b>	<b>7,117</b>
Cod.....	6,140	1,302	8,823	1,880	10,576	2,406
Redfish.....	15,648	2,937	20,324	4,145	16,644	3,958
Flatfish.....	2,080	507	2,215	584	1,776	687
Other.....	959	96	577	138	322	66
<b>Totals, Atlantic Coast.....</b>	<b>222,159</b>	<b>55,812</b>	<b>256,928</b>	<b>64,669</b>	<b>263,287</b>	<b>77,925</b>
Cod.....	76,354	17,911	109,539	24,744	106,173	25,960
Haddock.....	24,404	7,763	20,666	7,335	19,721	9,148
Redfish.....	45,738	9,654	56,112	12,408	56,391	14,532
Flatfish.....	51,775	15,241	59,048	17,435	69,716	25,524
Other.....	23,888	5,243	11,563	2,747	11,286	2,761

## Section 2.—Governments and the Fisheries

The Federal Government has full legislative jurisdiction over the coastal and inland fisheries of Canada, and all laws for the protection, conservation and development of these fisheries resources are enacted by the Parliament of Canada. The management of fisheries is, however, shared with provincial governments to which certain administrative responsibilities have been delegated.

The federal Department of the Environment exercises responsibility for the management of all fisheries, both marine and freshwater, in four East Coast provinces—Nova Scotia, New Brunswick, Newfoundland and Prince Edward Island—and in the Yukon and Northwest Territories. In four inland provinces—Ontario, Manitoba, Saskatchewan and Alberta—the management of all fisheries is conducted by the provincial governments. In Quebec, the provincial government manages both marine and freshwater fisheries, but the inspection of fish and fishery products produced for sale outside the province is carried

out by the federal Department of the Environment, as it is in all other provinces. In British Columbia, the fisheries for marine and anadromous (i.e., fish that migrate to the sea from fresh water) species are managed by the Department of the Environment, but the provincial government manages its freshwater fisheries. In the national parks across the country, the fisheries are managed by the Canadian Wildlife Service, Department of the Environment.

Licences for sport fishing in all provinces are distributed by the respective provincial government which retains all revenues so collected. Sport fishing licences in the Yukon and Northwest Territories are distributed by the federal Department of the Environment.

**Federal-Provincial Relations.**—The mutual interest of federal and provincial governments in fisheries problems is recognized in the undertaking of joint studies and programs, frequently on a regional basis. Regional committees established in recent years have brought together representatives of all governments concerned for periodic discussion. Four groups have evolved: the Federal-Provincial Atlantic Fisheries Committee consisting of representatives of the Federal Government and of the Governments of New Brunswick, Newfoundland, Nova Scotia, Prince Edward Island and Quebec; the Federal-Provincial Committee for Ontario Fisheries; the Federal-Provincial Prairie Fisheries Committee comprising representatives of the Federal Government and of the Governments of Alberta, Manitoba and Saskatchewan; and the Federal-Provincial British Columbia Fisheries Committee.

Members of the Committees are the Deputy Minister of the Environment of Canada and the Deputy Ministers of provincial departments responsible for fisheries. Subcommittees make recommendations for industrial development, research and marketing problems. The main committee in each case co-ordinates, where practicable, all activities in the respective fields of responsibility of its members and suggests to the respective government means of carrying out fisheries programs and projects of common concern. These include the development of methods and techniques in the catching of fish and of shore and plant facilities, and studies of the economics of fisheries to ensure that any proposed program of development is soundly based.

### Subsection 1.—The Federal Government

The work of the Federal Government in the conservation, development and general regulation of the nation's coastal and freshwater fisheries is performed, under the Minister of the Environment, by the Canadian Fisheries Service and two related agencies—the Fisheries Research Board and the Fisheries Prices Support Board. A brief outline of the functions of each of these agencies is given in this Subsection.

**The Canadian Fisheries Service.**—Canada's Fisheries Service, a component of the federal Department of the Environment, is responsible for the over-all management of the fisheries resources of the nation's coastal and inland waters. Jurisdiction over fisheries is exclusively federal under Canada's constitution, the British North America Act, 1867, although, as stated above, management responsibilities in fisheries have been delegated over the years to some provinces.

The Fisheries Service as now organized came into being on June 11, 1971, upon proclamation of the Government Organization Act 1970, which established the Department of the Environment as Canada's major national agency for combating pollution. The Department comprises the whole of the former Department of Fisheries and Forestry as well as environment-oriented elements of five other departments (see p. 142). The importance of the federal role in fisheries is emphasized in a clause of that Act designating the Minister of the Environment as also the Minister of Fisheries of Canada.

Two distinct but closely related elements are combined within the present Canadian Fisheries Service: (1) the operating branches of the former Fisheries Service of the Depart-



ment of Fisheries and Forestry, responsible for fisheries management and development programs; and (2) the Fisheries Research Board of Canada, concerned with research programs aimed at conserving and enhancing aquatic renewable resources and maintaining the biological fitness of the aquatic environment. In addition, several appointed public corporations and boards are involved in activities closely aligned with those of the Fisheries Service, including the Fisheries Prices Support Board, the Canadian Saltfish Corporation and the Freshwater Fish Marketing Corporation.

General direction of the Fisheries Service is provided by a small headquarters staff at Ottawa headed by the Assistant Deputy Minister, Fisheries Service, who acts also as Chairman of the Fisheries Research Board. Regional offices, administered by Regional Directors, are located at Vancouver, B.C., Winnipeg, Man., Quebec, Que., Halifax, N.S., and St. John's, Nfld.

**International Fisheries.**—Many of the deleterious effects of man on his aquatic resources are outgrowths of historical practice, insufficient knowledge, multiple uses of water, social and economic conditions, and national and international competition. Problems under national control are corrected as conditions warrant but many resources are shared with other nations and must be managed jointly.

Canada co-operates with many other nations in obtaining scientific data and formulating management proposals required to ensure the rational development and conservation of fisheries of common concern through membership in nine international fisheries commissions and one international council. These international organizations are established under the terms of formal conventions and assume responsibility for the investigation of specific living marine resources in the defined areas to which the terms of the respective conventions apply. Canadian representatives on these international bodies are appointed by Order in Council and include officials of the Department of the Environment and members of the fishing industry. Canada is a party to the following:—

- (1) the Convention between Canada and the United States of America for the Preservation of the Halibut Fishery of the Northern Pacific Ocean and Bering Sea;
- (2) the Convention between Canada and the United States of America for the Protection, Preservation and Extension of the Sockeye Salmon Fisheries in the Fraser River System (pink salmon added subsequently by protocol);
- (3) the International Convention for the High Seas Fisheries of the North Pacific Ocean;
- (4) the Interim Convention on Conservation of North Pacific Fur Seals;
- (5) the International Convention for the Northwest Atlantic Fisheries;
- (6) the Convention on Great Lakes Fisheries between Canada and the United States of America;
- (7) the International Convention for the Regulation of Whaling;
- (8) the Convention between the United States of America and the Republic of Costa Rica for the Establishment of an Inter-American Tropical Tuna Commission;
- (9) the International Council for the Exploration of the Sea; and
- (10) the International Convention for the Conservation of Atlantic Tunas.

Canada's membership in the International Pacific Halibut Commission dates back to 1923. It was the first international treaty signed by Canada on its own as an independent nation of the British Commonwealth. The terms of the convention between Canada and the United States provide for the development and maintenance of the maximum sustainable yield of halibut in the north Pacific Ocean and the Bering Sea. The Commission's headquarters is located at Seattle, Wash., where a scientific staff conducts investigations to provide data on which fishing regulations are based.

The International Pacific Salmon Fisheries Commission was established under a convention that dates back to 1930 between Canada and the United States for the protection, preservation and extension of the sockeye salmon fisheries in the Fraser River system. The convention was amended to include pink salmon in 1956. The Commission, with offices at New Westminster, B.C., is responsible for conducting studies of sockeye

and pink salmon in the convention area, regulating the fisheries and providing for apportioning the catch equally between fishermen of the two nations.

The International Convention for the High Seas Fisheries of the North Pacific Ocean came into force in 1953 with the exchange of ratifications between Canada, Japan and the United States. The purpose of the Convention is to ensure that fisheries of joint interest in the north Pacific Ocean are maintained at the level of maximum sustained productivity. The Commission, established under the terms of the Convention, maintains offices in Vancouver, B.C., and is responsible for promoting and co-ordinating scientific studies necessary to ascertain the conservation measures required to reach the objectives of the Convention and to recommend such measures to the contracting parties. This international fisheries Convention is unique in that it includes the "abstention principle", whereby a member nation abstains from fishing stocks that are being fully utilized by another member nation and meets certain other rigid qualifications.

The Fur Seal Treaty of 1911 between Canada, Japan, the Soviet Union and the United States is the earliest example of an international treaty established to provide for the conservation of a single marine species. The Treaty became inoperative during the early 1940s and a new Convention on Conservation of North Pacific Fur Seals came into force in 1957. A Commission, with headquarters at Washington, D.C., was established in 1958. Under the provisions of the Convention, commercial hunting of fur seals at sea is prohibited and the annual harvest is taken on the breeding islands. Canada and Japan do not participate in the annual hunt but each receives a share of the pelts taken by the Soviet Union and the United States. Scientific investigations are conducted to provide the data required to ensure that the fur seal populations are maintained at levels that will provide the greatest harvest year after year, with due regard to their relation to the productivity of other living marine resources of the area.

The International Convention for the Northwest Atlantic Fisheries, which came into force on July 3, 1950, provides for the investigation, protection and conservation of the fisheries of the northwest Atlantic Ocean to make possible the maintenance of a maximum sustained catch. Canada, Denmark, France, the Federal Republic of Germany, Iceland, Italy, Japan, Norway, Poland, Portugal, Romania, Spain, the Soviet Union, the United Kingdom and the United States are members of the Commission, which has its headquarters in Dartmouth, N.S. Major conservation measures adopted by the Commission have been related to minimum mesh sizes for trawl nets and to regulations for certain heavily fished stocks, including closed seasons and over-all catch limits. A scheme of international enforcement has been proposed to the governments of member nations whereby protection officers would be empowered to enforce conservation regulations adopted by the Commission not only for their own flag vessels but also for fishing vessels of other member countries.

The Convention on Great Lakes Fisheries between Canada and the United States came into existence in 1955. The Commission, with headquarters located at Ann Arbor, Mich., is responsible for formulating and co-ordinating research programs designed to determine measures needed to make best use of the fish stocks of common concern, recommending appropriate management measures and implementing a comprehensive program to eradicate or reduce the predator populations of sea lamprey found in the Great Lakes.

Canada has been a member of the International Whaling Commission since its inception in 1946. In order to conserve the important stocks of large whales in the world's oceans and provide for the orderly development of whaling activities, the Commission recommends scientific studies, determines the current condition of whale stocks and adopts regulations including open seasons, total catch quotas, closed areas and protected species. The members of the Commission include Argentina, Australia, Canada, Denmark, France, Iceland, Japan, Mexico, the Netherlands, Norway, Panama, South Africa, the Soviet Union, the United Kingdom and the United States. The headquarters of the Commission is at London, England.

In 1970, Japan joined Canada, Costa Rica, Mexico, Panama and the United States as a member of the Inter-American Tropical Tuna Commission which was established in 1950. The Commission conducts scientific investigations from its headquarters at La Jolla, California, to provide the data required to maintain the populations of yellowfin and skipjack tuna, as well as other species of fish taken by tuna fishing vessels in the eastern Pacific Ocean, at levels that permit maximum sustained catches. In recent years the main conservation regulation recommended by the Commission has been a catch quota for yellowfin tuna.

The International Council for the Exploration of the Sea was formed in 1902 to encourage and co-ordinate studies of the marine environment with particular reference to the living resources of the sea. Although the convention area includes the Atlantic Ocean and adjacent seas, the Council is primarily concerned with investigations conducted in the north Atlantic area. The seat of the Council is at Copenhagen, Denmark, and the member nations are Belgium, Canada, Denmark, Finland, France, the Federal Republic of Germany, Iceland, Ireland, Italy, the Netherlands, Norway, Poland, Portugal, Spain, Sweden, the United Kingdom and the Soviet Union. Canada became a member of the Council in 1967 and participates in co-operative oceanographic and biological investigations and in the annual scientific deliberations.

The first meeting of the International Commission for the Conservation of Atlantic Tunas was held in 1969 with representatives of Brazil, Canada, France, Ghana, Japan, Morocco, Portugal, South Africa, Spain and the United States in attendance. The Republic of Korea joined in 1970. The Commission has responsibility for studying the populations of tuna and tuna-like fishes in the Atlantic Ocean and its adjacent seas, and for making recommendations to the contracting parties concerning measures required to maintain the population of these fishes at levels that will permit the maximum sustainable catch for food and other purposes.

As evidence of its support for international consultation and co-operation in fisheries, Canada maintains active membership in the Committee of Fisheries of the Food and Agriculture Organization of the United Nations and in the Codex Alimentarius Commission which is concerned with world food quality standards.

In addition to co-operating with other nations to conserve high seas fisheries resources through international agreements, Canada has taken further action to protect the inshore fisheries in the coastal areas by establishing a 12-mile territorial waters limit and certain defined fishing zones. Canada excludes from these areas the fishing vessels of other nations except those having traditional fishing interests. Negotiations have been initiated with these latter countries to phase-out their fishing operations in Canada's Territorial Sea and Fishing Zones. Canada also enters into bilateral agreements as necessary to overcome specific fisheries problems.

**The Fisheries Prices Support Board.**—Established under the Fisheries Prices Support Act of 1944 (RSC 1970, c. F-23) the Fisheries Prices Support Board is responsible for investigating and, where appropriate, recommending government action to support prices of fishery products where declines are experienced. The basic principle of the legislation is to protect fishermen against sharp declines in prices and consequent loss of income due to causes beyond the control of the fishermen. The Board is responsible to the Minister of the Environment and consists of a chairman, who is a senior officer of the Fisheries Service of the Department of the Environment, and five members chosen from the fishing industry in the various fishing regions of Canada.

The Board has authority to buy quality fishery products under prescribed conditions and to dispose of them by sale or otherwise, or to pay to producers the difference between a price prescribed by the Board and the average price the product actually commands. The Board has no power to control prices other than its purchase policy nor has it any jurisdiction over operations in the fishing industry or the fish trade. Money necessary for dealings in fishery products is available to the Board from the Consolidated Revenue



Fund to a maximum amount of \$25,000,000 annually on recommendation of the federal Treasury Board and authorization of the Governor in Council.

Early in the year, the Government authorized the Board to continue a modified price stabilization program for frozen groundfish products. The program, in its conception, was designed to forestall distress selling in normal markets while ensuring fair returns to primary producers and processors. Since market conditions remained buoyant during the year, it was unnecessary for the Board to acquire product.

Programs designed to maintain stability in prices paid to yellow perch fishermen have been in effect since 1966. Under the 1970 program, the Board acquired slightly over 1,000,000 lb. of perch fillets at 40 cents a pound. All product was returned to suppliers by the end of the fiscal year at cost. The program, which added some stability to the marketing of this product during the initial mercury contamination difficulties, was operated without loss to the Government of Canada.

An Atlantic Queen Crab program was instituted during the fall months of 1970 to prevent distress sales of crab products, to provide temporary inventory financing and to stabilize the market for the Canadian product. By the time the program was operative, market conditions had improved with the result that the Board accepted inventory valued at \$92,000. The program and the consultations with the industry demonstrated to producers the necessity of producing a high-quality product and the difficulties involved in marketing a multitude of labels.

To ensure that the prices paid to fishermen for their 1970 production of salt codfish approximated those of the previous year, a deficiency payment program was authorized for the year. By the end of March 1971, funds had not been expended since the final settlement to fishermen by the Canadian Saltfish Corporation had not been established. It was expected that payments under this program would commence early in the 1971-72 fiscal year.

To assist in meeting food fish requirements for CIDA and the World Food Programme, the Board has acted as purchasing agent and supplier for canned and salted products. During 1970, the Board acquired, on its own behalf, 75,700 cases of mackerel for ultimate disposition through the World Food Programme. The Board also acted as purchasing agent for CIDA and the World Food Programme in acquiring an additional 339,203 cases of herring and mackerel.

To enable the Atlantic Coast groundfish exporters to plan and co-ordinate their production activities in relation to market requirements, the Board, through the facilities of the Marketing Branch of the Fisheries Service, began a market outlook service in the summer of 1970. The objective is to provide for the industry, at the commencement of the fishing season, a short-term supply and demand outlook for fillets and blocks of the major groundfish species. Demand outlook covers the potential level of United States consumption; the supply outlook is dealt with in terms of the major producers of groundfish such as Canada, Iceland, Norway, Denmark, Greenland, etc. The initial outlook is followed by periodic situation reports.

**The Freshwater Fish Marketing Corporation.**—This Corporation was established in 1969 (RSC 1970, c. F-13) for the purpose of marketing and trading in fish, fish products and fish byproducts in and out of Canada with the objective of ensuring more orderly marketing for the benefit of the whole fishery and achieving higher and more stable prices for the catch.

**The Canadian Saltfish Corporation.**—On Feb. 25, 1970, the House of Commons passed legislation (SC 1969-70, c. 32) authorizing the establishment of a corporation, the objects of which are to improve the earnings of primary producers of cured saltfish by buying and curing fish and by regulating interprovincial and export trade in both cured fish and byproducts of fish-curing. The Corporation, whose head office is at St. John's, Nfld., consists of a board of directors composed of a chairman, a president, one director for

each participating province and not more than five other directors, each of whom is appointed by the Governor in Council. It is assisted by an advisory committee of 15 members at least half of whom are fishermen or representative of fishermen. The limit of the Corporation's financial obligations is placed at \$10,000,000.

**The Fisheries Research Board of Canada.\***—The Fisheries Research Board is a research organization established by Act of Parliament (RSC 1970, c. F-24) for the purpose of conducting basic and applied research on Canada's living aquatic resources, their environment and their utilization. Its antecedents go back to 1898 and it is thus the lineal descendant of one of the oldest scientific organizations in Canada and one of the oldest government-supported research organizations under the supervision of an independent scientific board in North America.

The Board, which is under the jurisdiction of the Minister of the Environment, consists of a permanent chairman, who is appointed by the Governor in Council and who is a member of the Public Service of Canada, and "not more than eighteen other members" holding honorary appointments from the Minister of Fisheries for five-year terms; the Act requires that "a majority of the members of the Board, not including the chairman, shall be scientists, and the remaining members of the Board shall be representative of the Department (of the Environment) and the fishing industry". The scientific members are drawn principally from universities and research foundations across Canada, to include specialists in disciplines related to the Board's work. The industry members are selected from among

\* Revised by the Research and Development Branch, Canadian Fisheries Service, Department of the Environment, Ottawa.



Several artificial spawning channels have been set up by the Canadian Fisheries Service to improve the survival of salmon and trout. The Noel Pauls Brook channel in Newfoundland has an impressive record of achievement, having produced an estimated 350,000 fry in 1971 to stock the Exploits River, which has the largest potential for Atlantic salmon on the Island.

Canada's leading businessmen with an intimate knowledge of fishing and the fishing industry, and the Fisheries Service of the Department of the Environment representative is usually a senior staff member in Ottawa. Board members have both advisory and executive functions. The advisory functions are delegated in the first instance to regional Advisory Committees who conduct on-the-spot regional reviews and report to the Board on the operations and scientific programs with a view to their improvement. The executive functions are delegated to an Executive Committee elected from Board members and approved by the Minister.

The operations of the Board are designed to obtain the information needed for good management of the fisheries and other elements of the aquatic environment throughout Canada. Thus the Board's operations are highly decentralized, there being only a small administrative supervisory and publications staff in Ottawa. The responsibilities of the Ottawa office include planning and program co-ordination, and administration of a grant program to encourage university research in the fields of marine and aquatic science. The Board employs approximately 800 persons, of whom about 250 are scientists.

*Commercial and Recreational Fisheries.*—This program area is designed to add to fundamental knowledge concerning Canada's vast living marine and freshwater resources. Included are life history, population and behaviour studies leading to a sound scientific basis for the conservation and management of the commercially important fisheries including those for lobsters, crabs, shrimps, oysters, scallops, clams, marine mammals and other well-known economically important aquatic species of animals, such as salmon, cod, herring and halibut, as well as some marine plants, such as phytoplankton and seaweeds. Also included are studies in fish and shellfish diseases, fish predators and such basic studies as fish genetics, physiology and behaviour, the latter with a view to improving fish cultural and farming methods and also to improving fish farm and hatchery stocks. Besides these basic studies, new fishing grounds and new species for exploitation are sought and experiments in improving fishing methods are undertaken.

On the Atlantic Coast this work is conducted out of research stations located in St. Andrews, N.B., and St. John's, Nfld.; work on arctic fisheries and on sea mammals is directed from a laboratory situated in Ste. Anne de Bellevue, Que.; freshwater work is carried out from a station in Winnipeg, Man.; and work on the Pacific Coast is directed from research laboratories situated in Nanaimo, B.C. The Board operates 16 research vessels for its biological studies varying from small inshore and lake craft to specially built seagoing ships. The Board acts as Canada's research agent for three international fisheries commissions and two international sea-mammal commissions to which Canada is party.

*Aquatic Environment.*—This program emphasizes the study of the marine and freshwater environment in which aquatic organisms live. This is under continuing study to further knowledge in primary and secondary productivity and the occurrence of ocean and freshwater life of importance to man. Considerable importance is placed upon increased research efforts associated with pollution prediction, abatement and elimination, including the effects of freshwater and marine eutrophication. Encompassed here also are investigations into the distribution and physical and chemical characteristics of major ocean currents and the physical and biological structures of large ocean areas including the ocean bottom where concentrations of fish and other aquatic life occur. Ocean climate and ocean weather as they affect the distribution of fish and other living organisms, as well as the vertical and horizontal distribution of nutrient matter and the cycle of energy and life in the seas, are regularly observed and correlated. These studies, as well as special studies of interest to the Armed Forces, the Ministry of Transport and the international fishery commissions, are carried out by groups operating from Dartmouth, N.S., Winnipeg, Man., Burlington, Ont., and Nanaimo, B.C., with strong ship support from the Armed Forces and the Ministry of Transport, and with the co-operation of the Department of Energy, Mines and Resources.

*Products and Processing.*—Investigations are conducted toward improving methods of preserving, processing, storing and distributing fish products, as well as of utilizing all



parts of the fish. These include developments in refrigeration and the use of antibiotics as fish preservatives, improvements in canning, smoking and salting of fish, and the development of new products for the utilization of abundant species that are not now used for food. Fundamental studies of the structure and composition of fish proteins, marine oils, hormones from aquatic organisms and other products from the sea are under way.

These investigations are carried out on the Atlantic Coast at research laboratories situated at Halifax, N.S., and St. John's, Nfld. For inland products and processing, research is centred at Winnipeg, Man., and a research laboratory at Vancouver, B.C., undertakes investigation of Pacific Coast problems.

### Subsection 2.—The Provincial Governments\*

An outline of the work undertaken by each of the provincial governments in connection with administration of commercial and game fisheries is given in the following paragraphs.

**Newfoundland.**—The provincial Department of Fisheries in conjunction with the Newfoundland Fisheries Development Authority, a Crown corporation established in 1953, is concerned mainly with improvement and development of fishing and production methods. It conducts experiments and demonstrations in new designs of fishing gear as well as the modification of existing types, the construction of multi-purpose fishing craft and the exploration of potential fishing grounds with a view to increasing catching efficiency.

Loans are made to processors for the establishment and expansion of fish processing plants and for deepsea draggers. Aid to fishermen for the construction of modern vessels capable of a greater variety of fishing operations and larger production is provided by loans from the Newfoundland Fisheries Loan Board. The Fishing and Coasting Vessels Rebuilding and Repairs (Bounties) Act, 1958 authorizes financial assistance in maintaining and prolonging the life of the existing fleet. The Coasting Vessels (Bounties) Act, 1959 authorizes the granting, for locally built ships, of a maximum bounty of \$150 a ton for vessels of between 100 and 400 gross tons. The Fishing Ships (Bounties) Act, 1970 authorizes the payment of a bounty of \$200 per registered gross tonnage on boats 10 tons under deck up to 150 tons which are built under permit. An Inshore Fisheries Assistance Programme provides a bounty of \$10 a foot on boats measuring from 20 to 30 feet and \$12.50 a foot on boats measuring 31 to 35 feet. Bounties are also paid to fishermen on certain types of synthetic fibre fishing nets and lines.

Other services include advising fishermen on gear and equipment, industrial research, plant construction and engineering, and assistance to fishermen's unions. The Fisheries Salt Act, 1957 and the Fishing Salt Regulations, 1969 authorize rigid control over the sale and distribution of fisheries salt.

**Sport Fisheries.**—The inland waters of Newfoundland, although they provide excellent sport fishing, are not commercially exploited. The lakes and ponds actually remain under the authority of the Natural Resources Branch of the provincial Department of Mines, Agriculture and Resources but, under federal-provincial agreement, these waters, including rivers and streams, are under federal control in matters of conservation and guardianship.

**Prince Edward Island.**—The sea and inland fisheries of Prince Edward Island are administered by the Fisheries Service of the federal Department of the Environment. The provincial Department of Fisheries supplements federal activity in this area and is concerned principally with quantifying and, within the terms of the provincial role in fisheries management, maximizing returns, both social and economic, to those engaged in the fisheries industry. The Department provides technical assistance and, in conjunction with the federal fisheries organizations, engages in experimental and developmental work in such fields as fishing methods, resource inventories, statistical studies and management assistance.

\* Prepared by the respective provincial departments responsible for fisheries administration.

Loans are made available to fishermen and the fishing industry through the Prince Edward Island Lending Authority, a Crown corporation established in 1969 which is empowered to grant credit in the sectors of fisheries, industry, tourism and agriculture. The provincial responsibilities in the area of freshwater fisheries are discharged by the Fish and Wildlife Division of the Department of Tourist Development.

**Nova Scotia.**—Although the Federal Government has exclusive jurisdiction over the marine and inland fisheries of Nova Scotia and attends to all phases of administration related thereto, the Nova Scotia Government operates in several fields where provincial initiative is found to be necessary and appropriate, having regard for the importance of the fishery resources in terms of employment, industry, trade and recreation.

In the commercial fisheries, provincial government interests are the concern of the Nova Scotia Department of Fisheries. The Fishermen's Loan Board is administered by that Department and the Industrial Loan Board by the Nova Scotia Department of Development; the first makes loans to fishermen for the purchase of boats and engines and the second makes loans for the construction or improvement of fish processing plants. Fisheries engineers perform inspection and survey duties for the Loan Boards and provide technical assistance and advice to loan applicants and others in the fisheries and allied industries, notably the boatbuilding industry. Instructors conduct courses for fishermen in the care and maintenance of marine engines, in basic navigation and in the design, construction and maintenance of gear. The on-course instruction is supplemented frequently by informal on-the-spot assistance to smaller groups who find themselves in need of technical help with particular problems. The Nova Scotia Department of Fisheries, with the financial and technical assistance of the Fisheries Service of the federal Department of the Environment, organizes and conducts explorations of fishing grounds for new resources and studies and introduces new, improved gear and methods to the industry. Recently, work has been carried out on "off-bottom" methods of rearing oysters and mussels. An oyster hatchery went into production in 1971 which will also facilitate studies and rearing trials with other shellfish species.

**Sport Fisheries.**—In recent years, Nova Scotia, through the Wildlife Conservation Division of its Department of Lands and Forests, has spent a considerable amount of money on management and research in certain lakes and streams in the province with a view to aiding the Atlantic salmon and trout fishery. A continuing program of lake and stream investigations was begun in 1961 in order to obtain information useful in the formulation of a fish management program for the future. A system of rearing ponds, capable of producing 100,000 yearling speckled trout annually, has been established on the Moser River in Halifax County. Several projects dealing with reclamation, farm ponds, rainbow trout and smallmouth bass are also being conducted. A full-time fisheries biologist is employed by the Division.

The Nova Scotia Department of Tourism has been promoting saltwater sport fishing by arranging, in conjunction with the provincial Department of Fisheries and the federal Department of Manpower and Immigration, a series of courses for captains contemplating the establishment of charter services, awarding prizes to sportsmen with the largest tuna and bass catches of the season, sponsoring the International Tuna Cup Match and the Intercollegiate Game Fish Seminar and Match, and publishing a brochure listing charter boats available in the province.

**New Brunswick.**—Commercial fishing is one of the most important basic industries of New Brunswick, employing about 6,200 fishermen with annual earnings of \$16,000,000 and 3,000 plant workers. The annual marketed value of fish products is about \$65,000,000, of which 90 p.c. is exported to the United States. New Brunswick's commercial fisheries, both tidal and inland, are under the legislative jurisdiction of the federal Department of the Environment; angling in Crown waters is the responsibility of the provincial Department of Natural Resources.

The New Brunswick Department of Fisheries and Environment has five Branches. The *General Administration Branch* is responsible for the planning, organization and control of all general administrative services of the Department, including program formation, financial administration, personnel management and public relations. Close liaison is maintained with other federal and provincial departments and agencies concerned with the fishing industry of the province.

The functions of the *Boatbuilding and Maintenance Branch*, with a personnel consisting of marine engineers, a naval architect and boat inspectors, include the study, modification and approval of plans and specifications of the numerous types and classes of fishing vessels employed in the fisheries of the province as well as the inspection of vessels financed by the Fishermen's Loan Board. New designs are being introduced, the trend being toward larger combination multi-purpose vessels. Under the leadership of the experienced staff of this Branch, New Brunswick fishermen are now operating a fleet geared for diversified operation, permitting the inexpensive and easy conversion from one fishery operation to more lucrative operations throughout the season. A 600-ton-capacity marine railway dry dock constructed in 1968 at Bas Caraquet serves the offshore fishing fleet of northeast New Brunswick and a 200-ton transfer system adjacent to the dry dock provides winter lay-up and repair facilities for smaller vessels. Nearby shipbuilding and repairing facilities provide ready and adequate service to an expanding offshore fleet.

The *Exploratory Fishing and Education Branch* continues the experimental and exploratory fishing and fish processing projects that have been carried on for many years in co-operation with the (now) federal Department of the Environment. Technical and financial assistance are made available to the New Brunswick Department of Fisheries and Environment for projects undertaken toward modernizing fishing and processing methods, experimenting with new types of fish-catching equipment and demonstrating its operation to fishermen, and exploring and developing hitherto unexploited or under-exploited species of molluscs, crustaceans, fishes and seaweeds. This work has resulted in the establishment of snow crab, shrimp, Irish moss, tuna and eel fisheries in New Brunswick.

During 1971-72, 14 fisheries development projects were undertaken on a shared-cost basis with the federal Department of the Environment. A survey of the mollusc resources of eastern and northern New Brunswick located 11 surf clam beds and one ocean quahaug bed in shallow waters and their commercial importance is under investigation. The study also considered the feasibility of expanding the soft-shell clam and mussel industries and the limited exploitation of welk, following the discovery of suitable concentrations of these resources. The Branch has been involved in the management of the oyster resource of the Buctouche region of Northumberland Strait, one of the best oyster seed producing areas in the Atlantic area. The Bay of Fundy coast revealed commercial concentrations of rockweed from which industrial alginates are extracted; the estimated standing crop of 53,000 tons can provide a sustained harvest of 6,000 tons a year. Irish moss, which contains a colloid with wide industrial applications, has also been found in commercial quantities in several areas of northern New Brunswick. Types of fishing gear are being tested to improve the catchability of northern pink shrimp in Atlantic waters and refrigeration systems are being adapted for installation on shrimp vessels. Extensive areas of the Gulf of St. Lawrence are being explored to determine the extent of the capelin and sardine resources. An inshore mackerel fishery using the latest developments in purse-seining techniques is being developed in Northumberland Strait with the use of small inshore vessels. Surveys are under way to determine the commercial significance of the small rock crabs along the coast and incentive is offered for their exploitation.

The Branch operates a School of Fisheries at Caraquet where, in the 1970-71 academic year, 296 fishermen took training in the various phases of their trade. The School teaches navigation, administration, marine biology, oceanography, radiotelephone, metal- and wood-working, arithmetic and languages, and graduates may receive practical training aboard large modern fishing vessels under a joint federal-provincial program of technical upgrading. Following a few weeks of training, apprentices are taken on as regular crew members.



The *Fish Inspection and Marketing Branch* administers the New Brunswick Fish Inspection Act and Regulations, although, for greater effectiveness and to avoid duplication of personnel, 30 fish inspectors of the Fisheries Service of the federal Department of the Environment, Maritimes Area, carry out their application. The Branch is active in promoting the expansion and modernization of existing fish processing plants and the establishment of new plants in the province. Its efforts are aimed at studying existing markets and developing new ones for fishery products at home and abroad in collaboration with other government agencies, federal and provincial. Emphasis is placed on promoting the consumption of fishery products within the province, on the development of new products for domestic and export markets, and on the training of plant personnel in management and production controls.

The *Fishermen's Loan Board of New Brunswick*, a body corporate operating under the jurisdiction of the Minister of Fisheries and Environment, was established in 1946 and now operates under the Fishermen's Loan Board Act of 1952 and the regulations of Nov. 1, 1963. Its function is to improve and develop the fishing industry of the province by providing adequate financial assistance to individual fishermen, groups, associations, processing firms and corporations, at a moderate rate of interest to construct modern fishing vessels, make major repairs and purchase engines and equipment. Since its inception, the Board has granted 2,244 loans to New Brunswick fishermen for a total of over \$30,175,000; outstanding loans amounted to \$12,788,168 in 1970.

Loans are repayable within a five-year period on small inshore fishing vessels; repayment schedules on large trawlers may extend to 15 years, based on the gross proceeds of the catch. Most of the new fishing vessels being built for fishermen and fish processing firms in the province are financed by the Board. The Board acts as agent for the federal Department of the Environment financial assistance program granted to owners of new fishing vessels that are not eligible for the shipbuilding subsidy granted by the Department of Industry, Trade and Commerce.

*Sport Fisheries.*—Sport fishing contributes substantially to the economy of the province. Great Atlantic salmon rivers like the Miramichi, the Restigouche and the Saint John are known around the world for their prolific production of this majestic game fish and attract many thousands of tourists to the province each year. Anglers catch as many as 50,000 salmon a year in the Miramichi system alone. Many other species are also sought after by both residents and non-residents in the hundreds of streams, rivers and lakes of the province.

**Quebec.**—The sea fisheries of Quebec are administered by the Fisheries Branch of the Quebec Department of Industry and Commerce, which carries on its functions through three Divisions—Research, Economics, and Technical Services. The *Research Division* is involved in experimental work and study on the biological aspects of commercial fish species, on the processing of seafoods for marketing, and on the testing of new types of fishing gear. The work of the Biological Service of the Division is facilitated by the availability of extensive research equipment at the Marine Biology Station in Grande Rivière and at the new government science complex at Ste. Foy in suburban Quebec.

One of the main functions of the *Economics Division* is to administer the loan program, which applies to construction and repair of boats, as well as to administer other forms of government assistance. In 1971, the active offshore fishing fleet included three 166-foot and three 129-foot steel trawlers, two 125-foot trawlers, one 100-foot dragger, six 87-foot trawler-seiners, seven 87-foot wooden trawlers, 14 82-foot steel trawlers, 74 60-to-65-foot wooden trawlers and 48 45-to-54-foot "gaspésiennes" and long-liners. As at Mar. 31, 1971, owners of these fishing vessels held outstanding government loans, for both construction and repair, totalling nearly \$10,000,000. This represents an improvement of some \$2,000,000 over the situation of a year earlier. The Economics Division also carries out socio-economic analyses which are necessary to the government in planning action in the field of fisheries and in ensuring the efficiency of development projects.

The *Technical Services Division* conducts regular inspections of fishing vessels, keeps close supervision over the operations of maintenance and repair crews and also supervises the tenders submitted to fishermen by shipyards or other suppliers. Its protective service issues fishing permits, conducts land and sea patrols and investigates infractions of regulations. The Division includes an Engineering Service which draws up plans and specifications related to improvements in fishing equipment and a Refrigeration Service which administers Fisheries Branch equipment, including 39 cold storage warehouses with a daily freezing capacity of 500 tons and a storage capacity of 25,000,000 lb.

Fisheries Branch administration is centralized in Quebec City, with offices in the main fishing centres. In co-operation with the Department of Education, it conducts a training program for fishermen and producers for which it maintains a fisheries school and a training vessel brought into service in June 1968. The Department of Industry and Commerce works closely with the Quebec Planning and Development Board and with the Eastern Quebec Regional Administrative Conference in the administration of various development programs, one of which is a training program designed to advance the domestic use of seafoods.

*Sport Fisheries.*—Sport fishing in the inland waters of Quebec is under the jurisdiction of the Department of Tourism, Fish and Game, which employs 417 full-time wardens and issues the required sport-fishing licences. Four hatcheries are maintained by the Department, where speckled trout, brown trout, rainbow trout, grey trout, ouananiche, maskinonge and salmon are reared for the restocking of lakes and streams.

Excellent fishing may be found in all provincial parks and reserves. Gaspé and Laurentide Parks are renowned for trout fishing, and the waters of Chibougamau Reserve and La Vérendrye Park, situated on the height of land, abound in pickerel, pike and grey trout. Eleven salmon rivers are open to anglers—the Petit Saguenay, the Laval, the Moisie, the Matane, the Cap Chat, the Ste. Anne, the St. Jean, the Matapédia, the Dartmouth, the Port Daniel and the Petite Cascapédia.

A committee made up of directors of the Quebec Wildlife Federation makes recommendations to the provincial government concerning legislation required for the maintenance of satisfactory fishing conditions and other problems arising out of the ever-changing conditions of modern life and their effect on the wildlife of the province.

**Ontario.**—The fishery resources of Ontario are administered by the Commercial Fish and Fur Branch and the Sport Fisheries Branch of the Department of Lands and Forests, under the authority of the federal Fisheries Act, the Fishery Regulations for the Province of Ontario, the Ontario Game and Fish Act and the Regulations connected therewith.

*Commercial Fisheries.*—The commercial fishing industry in Ontario provides employment for about 1,900 commercial fishermen and 4,000 bait fishermen directly and for many more indirectly. The industry, with a capital value of over \$12,000,000, produces an annual yield of from 55,000,000 lb. to 72,000,000 lb. of fish, which includes more than 9,000,000 lb. of bait fish and has a market value of from \$15,000,000 to over \$18,000,000. The industry, although widely scattered throughout the province, is centred chiefly on the Great Lakes, particularly Lake Erie. The species taken commercially include perch, smelt, whitefish, pickerel, lake trout, white bass, pike, herring, chub, sheepshead, carp, catfish and bullheads, sturgeon, eel, goldeye, rock bass, sunfish and suckers. More than 250 smaller inland lakes are commercially fished, mainly those in the northwestern portion of the province, and careful management of these lakes is essential to ensure continued production.

The types of fishing boats in use vary from small craft to 70-foot tugs, and types of gear vary from gill-nets, pound-nets and trap-nets, seines, trawls and baited hooks to small hand-operated seines and dip-nets. Fishing methods and equipment have been modernized extensively during the past few years. Diesel-driven steelhull tugs with depth-sounding devices, radar and ship-to-ship and ship-to-shore communications have been in use for some time. Knowledge of the fish and their movements is constantly being expanded

from biological research findings. Modern icing facilities and transportation methods are in use as well as new types of fishing gear. Trawling has proved very efficient in harvesting smelt on a year-round basis in Lake Erie.

Most Ontario fishermen are organized into various local associations and many of these associations are, in turn, represented by the Ontario Council of Commercial Fisheries, which performs important services to the industry.

*Sport Fisheries.*—Having an estimated freshwater area of approximately 68,490 sq. miles, Ontario is one of the most attractive fishing areas on the Continent. Excellent angling opportunities are available for such prized fish as brook, rainbow and lake trout, yellow pickerel (walleye), smallmouth and largemouth bass, northern pike and maskinonge. The recreational angling fraternity is no longer restricted to open water—it is now a year-round game. In many stores and camps throughout the province, a wide selection of ice-angling equipment, including snowmobile rentals, is available to the fisherman and seasons have been extended in many parts of the province for certain species of fish to facilitate winter angling. Annual revenue from the sale of angling licences prior to 1971 was in the neighbourhood of \$6,000,000; as of the 1971 summer season, licences are no longer required of residents but an annual fee of \$8.50 is payable by non-residents for fishing privileges. The management of this valuable resource is administered by a field staff of well-trained conservation officers and biologists located in 21 forest districts of the province.

*Provincial Hatcheries.*—Ontario operates 16 fish hatcheries and rearing stations; the main species reared include brook trout, rainbow trout, lake trout, splake, smallmouth and largemouth bass and maskinonge. The basic aim of the hatcheries is the economic production of high-quality species to sustain and develop recreational fishing throughout the province. Research is conducted on the improvement of transportation and planting techniques to ensure maximum survival and returns to the angler; such transportation includes the use of aircraft, helicopters and trucks. The marking of hatchery fish by removal of a single fin is providing valuable information on survival of fish stocks and angler success.

**Manitoba.**—Manitoba's interior location belies the importance of its fisheries resources which stems from an abundance of fresh water in about 40,000 sq. miles of lakes and streams covering 16 p.c. of the area of the province. The traditional utilization of these resources for commercial, sport and domestic purposes was unfortunately adversely affected during 1970-71 by mercury contamination of fish, first discovered in Manitoba waters in December 1969. Commercial fishing was discontinued in Lake Winnipeg, Cedar Lake and the Saskatchewan River at the commencement of the summer season and on June 12 at Split and Sipiwek Lakes in northern Manitoba. Financial assistance programs, cost-shared with the Federal Government, were arranged for the affected commercial fishermen. Angling was permitted in all waters although warnings were issued. The harvest of fish by many native people for local use also declined.

The commercial fishery in the year ended Mar. 31, 1971 produced 14,100,000 lb. of fish, a 34-p.c. decrease from the 21,400,000 lb. of the previous year. The value to the fishermen declined \$1,200,000 to \$2,100,000. Northern waters contributed 6,300,000 lb. (45 p.c.), followed by Lake Winnipegosis with 3,500,000 lb. (25 p.c.) and Lake Manitoba with 3,300,000 lb. (23 p.c.). The production from Lake Winnipeg was only 400,000 lb. (3 p.c.), a decline of 5,300,000 lb., because the only commercial fishing permitted was for mink feed by local ranchers. Sixteen species or groups of species normally enter into the commercial catch but only a few species predominate. In 1970-71, whitefish contributed 3,800,000 lb., pike 2,500,000 lb. and walleye (pickerel) 2,300,000 lb. A miscellany of species but primarily suckers and carp contributed 4,800,000 lb. All of the commercial catch is marketed by the Freshwater Fish Marketing Corporation, a federal Crown agency, and is exported mainly to the United States. Gill-nets are the main fishing gear. About 1,240 fishermen operated during the open-water fishing and 1,400 took part in winter fishing.



Fish farming using rainbow trout in "pothole" lakes was started on a commercial basis but the results did not meet expectations. A new plan for commercial bait fishing was also inaugurated.

Fisheries administration is under the control of the Department of Mines, Resources and Environmental Management and is divided into research, planning and operations sectors. The operations sector is divided into Headquarters and four regional units. Conservation officers enforce both the commercial and the angling regulations and carry out numerous other duties in connection with fisheries management. Professional biologists carry out a continuing program of studies which not only monitor the resource but also extend the knowledge of it. Fish culture plays an important role in fisheries management. Pickerel hatcheries are located on Lakes Winnipegosis and Manitoba. Lake Winnipeg has two hatcheries, one at Dauphin River and the other at Grand Rapids. A trout hatchery is located in the Whiteshell Provincial Park. Two temporary facilities for collection of spawn are also used.

*Sport Fisheries.*—The sport fishery is an important use of the fishery resource, with walleye, pike, perch and several kinds of trout being the principal sport species. A total of 117,382 angling licences were sold in 1970-71 of which 90,979 were purchased by residents of Canada. An increase in fees and the discovery of mercury contamination in fish probably was responsible for a decline of 13,504 in the number of licences sold from the previous year.

**Saskatchewan.**—Approximately 32,000 sq. miles of water, about one eighth of Saskatchewan's area, provide the basis for a fishery resource that contributes much to the economic and recreational activity of the province. The Fisheries Branch of the Department of Natural Resources, with head office at Prince Albert, administers the fisheries. The Branch has three main Divisions—Management, Research and Fish Culture—which are responsible for planning policies; developing programs to ensure the proper management and utilization of the fishery resource; interpreting and explaining policies, programs and regulations; administering the Acts and Regulations (both federal and provincial); and adapting regulations to meet changing conditions. The objective is to encourage efficient multi-use of the fishery, taking into consideration the interests of the various groups concerned—commercial fishermen, mink ranchers, anglers and the public generally.

In 1969-70 the Saskatchewan commercial fishery harvested approximately 14,000,000 lb. of fish, having a landed value to the fishermen of \$2,300,000 and a market value of \$4,600,000. In addition, a commercial harvest of 210,000 lb. of brine shrimp and brine shrimp eggs was taken from several saline lakes in southern Saskatchewan. These are processed for sale to fish hobbyists. Although low fur prices continued to exert a depressing influence on mink ranching in Saskatchewan, 21 ranches in 1969 harvested approximately 2,100,000 lb. of fish to feed 3,437 breeding animals.

The Fish Research Division conducts biological surveys on most of the large lakes and on many smaller water bodies and streams in the province to provide information for the development of fisheries management policies and programs. The current program is designed to determine productivity of water bodies, secure information on abundance and relationship of fish species, investigate ecology and assess factors affecting environment of fish, develop techniques to achieve maximum harvest of fish populations without prejudice to continued production, and develop techniques to facilitate rehabilitation and stocking of small water bodies. Limnological and fisheries investigations are continuing on recently established reservoirs on the South Saskatchewan River, including Lake Diefenbaker. The long-term creel census on Lac la Ronge is being supplemented by an intensive investigation of the life history and ecology of northern pike. Additional creel censuses are also under way on Nemeiben Lake, Puskwakau River and the Qu'Appelle Lakes.

The provincial hatchery at Fort Qu'Appelle reared over 28,000,000 fish in 1969 for stocking in 132 waters.

*Sport Fisheries.*—Saskatchewan continues to produce some of the finest sport fishing in Canada, as evidenced by the increasing number of anglers licensed. In 1969, a record

total of 143,579 angling licences were sold, representing a 10-p.c. increase in sales over 1968. As in previous years, outstanding numbers of northern pike, lake trout, walleye, brook trout, brown trout and rainbow trout were taken.

A continuous program of inventory and examination of sport fishing stocks is maintained by the Management Division of the Fisheries Branch. During 1969, 249 waters were examined. The stocked game trout program continues to grow in popularity; to date, 33 lakes and 40 streams and rivers have been stocked with various species of trout and salmon.

**Alberta.**—Commercial and sport fishing are administered by the Fish and Wildlife Division of the Department of Lands and Forests, under the authority of the Fisheries Act (Canada) and the Fish Marketing Act (Alberta). Production of commercial fish from Alberta's 6,485 sq. miles of fresh water for the year ended Mar. 31, 1970, was 10,805,771 lb. Although this quantity was slightly lower than that in the previous year, the landed value of the catch was \$1,017,162 as against \$932,940 in 1968-69 and the marketed value was \$1,727,743 compared with \$1,466,370. Lake whitefish is the most valuable commercially caught fish; it accounted for 56 p.c. of the total marketed value but represented only 22 p.c. of the total landings. Production of tullibee (cisco), primarily used for animal food, remained in second place in value among the fish marketed. Other species taken, in order of marketed value, were pike, walleye (pickerel), perch, ling, suckers, lake trout and goldeye. A good part of the quantity taken is marketed outside the province, mainly in the United States.

*Sport Fisheries.*—There were 148,337 angling licences sold in Alberta in 1970-71, of which 145,491 went to resident and non-resident Canadians and 2,846 to non-resident non-Canadians. A new licence, designated the Trophy Lake Licence, was instituted as a requirement to fish seven specified lakes which are being managed to produce large or trophy-size sport fish.

In 1970, a total of 177 lakes and streams were stocked with 5,686,000 fish and fish eggs; 61 p.c. were rainbow trout, 22 p.c. walleye eggs and 17 p.c. cutthroat and eastern brook trout, kokanee, perch, pike and coho salmon. Coho salmon were introduced to Cold Lake to establish a population for sport fishing; the success of this experiment will be known in late 1971 when the mature salmon will return to their nursery stream. Licences sold for game fish farming, for both private and commercial purposes, numbered 130 in 1970 compared with 26 in the previous year. Rainbow trout is the major species raised.

Sport fisheries in Alberta are administered on a regional basis, with six fisheries biologists located in various centres of the province and responsible for a delineated geographic area. Each biologist is assisted by one or more technicians. In addition to the regional staff, there is a Research Section composed of two biologists and a technician, and a Pollution Section consisting of one biologist and a technician located in Edmonton.

**British Columbia.**—A Fisheries Office, which was organized in 1901-02 and became very active in fish culture work, building and operating fish hatcheries and instituting scientific research into various fishery problems, was superseded in 1947 by the Department of Fisheries which in turn was superseded in 1957 by the Department of Recreation and Conservation. Today, the Commercial Fisheries Branch of the Department of Recreation and Conservation is the provincial organization concerned with commercial fisheries. Broadly speaking, the administrative and regulative jurisdiction over the fisheries of British Columbia rests with the federal authority. The ownership of the fisheries in the non-tidal waters is vested in the Crown in the right of the province, as are the shell fisheries such as oyster fishing and clam fishing in tidal waters. The province administers these fisheries although the regulations covering them are made under federal Order in Council on the advice and recommendation of the province.

The provincial Fisheries Act provides for the taxation of the fisheries and, under civil and property rights, for the regulation and control of the various fish processing plants

under a system of licensing. The commercial harvesting of oysters and marine aquatic plants is regulated by provincial permits and licences. Provision is also made for arbitration of disputes regarding fish prices that may arise between the fishermen and operators of the various licensed plants. The administration of the Act involves the collection of revenue and the supervision of plant operations.

Regulation and administration of net fishing in the non-tidal waters of the province, including commercial fishing and authority for regulation of the game fisheries in non-tidal waters, is vested in the Fish and Wildlife Branch which operates a number of trout hatcheries and egg-taking stations for re-stocking purposes.

The Branch co-operates closely with the Fisheries Research Board of Canada. The biological research into those species of shellfish over which the province has control, principally oysters and clams as well as marine plants, is conducted by the Fisheries Research Board of Canada at the Pacific Biological Station, Nanaimo, B.C., under agreement with the federal and provincial authorities. The object of this research is to encourage the industry to produce better products more economically and to enable the Commercial Fisheries Branch to regulate the various species so that maximum exploitation may be obtained on a sustained-yield basis.

### PART III.—FURS

#### Section 1.—The Fur Industry\*

The value of raw furs produced in Canada in the 1969-70 season amounted to \$34,766,389. Ranch-raised furs accounted for \$18,881,237 (54.3 p.c.) of this total and wildlife pelts for \$15,885,152 (45.7 p.c.). The value of the 1969-70 production was approximately 15 p.c. below the 1968-69 output. This decline was due in part to lower values for wildlife pelts, but the principal reason was the weaker market for ranch mink wherein the average price realized per pelt was approximately 23 p.c. below the 1968-69 average.

**Fur Trapping.**—Trapping is carried on in all the provinces and territories, the principal producers in 1969-70 being Ontario (22.7 p.c.), Alberta (15.1 p.c.), Manitoba (13.2 p.c.) and Quebec (10.7 p.c.). Beaver was again by far the most important fur bearer, the production of 433,408 pelts worth \$6,540,378 accounting for 41 p.c. of the total value of the wild fur catch. Conservation measures, including re-stocking depleted areas with beaver from other parts of the country, have been instrumental in maintaining the numbers of this fur bearer. In 1969-70 the principal producers of beaver pelts were Ontario (36.9 p.c.), Quebec (17.9 p.c.), Alberta (13.6 p.c.), Manitoba (9.9 p.c.) and Saskatchewan (9.2 p.c.).

In all the important trapping areas the numbers of the wild fur bearers are being well maintained and even with today's extensive output from fur farms, fur trapping accounted for almost half of the total value of the Canadian raw fur production in the 1969-70 season. The main trapping areas are in the northern parts of the provinces and in the Northwest Territories and the Yukon Territory where most of the trapping is done by the native population. The trapping of fur bearers continues to be an important source of revenue for many of these people, although a growing number are turning to more attractive alternative employment where this is available.

Fur trapping is a primary, seasonal industry and the economic factors that affect the industry in Canada are common to trapping in most other fur producing countries. The income of trappers is dictated by the volume of the catch and by the prices obtained for the catch. Both production and prices are subject to rather wide variations and returns to trappers fluctuate considerably from year to year. Production, governed by biological and other natural factors, is subject to cyclical fluctuations and cannot be readily controlled. Similarly, the market for furs is a fashion-oriented world market in which the determination of prices is largely beyond the influence of the trapper. The drastic decline in the demand

\* Prepared by the Fur Unit of the Production and Marketing Branch, Canada Department of Agriculture, Ottawa.



and consequently in the price realizations for long-haired furs, which prevailed throughout the 1950s, is a particularly outstanding example of the effects of style changes.

**Fur Farming.**—The raising of wild fur-bearing animals in captivity for their pelts has been carried on in Canada for many years; in the 1969-70 season, pelts produced on farms accounted for 54.3 p.c. of the value of the Canadian fur production. The industry is carried on in all provinces, the principal producers being Ontario (32.8 p.c.), British Columbia (21.4 p.c.), Manitoba (12.8 p.c.) and Alberta (11.0 p.c.).

**Mink.**—The rather brief history of mink farming records a steady growth in this industry from its beginnings in the early 1900s; the following figures depict the recent growth:—

<i>Year</i>	<i>Pelt Production</i>	<i>Average Realization</i>	<i>Year</i>	<i>Pelt Production</i>	<i>Average Realization</i>
	No.	\$		No.	\$
1930.....	3,284	10.52	1966.....	1,810,691	12.41
1940.....	229,202	9.64	1967.....	1,967,323	11.58
1950.....	589,352	17.08	1968.....	1,667,945	13.60
1960.....	1,203,853	14.03	1969.....	1,778,737	10.48
1965.....	1,624,154	17.41	1970.....	1,494,394	9.65

The development of mink farming in Canada was paralleled and in some instances exceeded in a number of other countries, and by 1965 the world output amounted to around 23,000,000 pelts annually. Throughout this period, consumer demand for mink kept pace with and sometimes surpassed the expanding production, and carryovers of unsold mink pelts at the auction level, from one season to another, were virtually unknown. From 1966 onward, the ability of the world market to absorb the increasing annual production became less assured and, in the later 1960s, average realizations for most types of mink declined to the point where producers were unable to recover their costs. The weaker market may be attributed to a number of factors, the most important of which is that, after many years of expansion, the demand for mink in present markets (notably North America and continental Europe) appears to have levelled off. As a result of the unfavourable returns, a number of mink farmers in North America and Europe have ceased operations in recent years. For the immediate future the resulting decline in the number of pelts available might put fresh life in the market, but over the longer term there is a pressing need to develop new markets for this product.

**Chinchilla.**—In 1969, Alberta was the principal producer of chinchilla pelts followed by Ontario, British Columbia and Saskatchewan. The following figures show the production, average prices and the number of farms in recent years:—

<i>Year</i>	<i>Pelt Production</i>	<i>Average Realization</i>	<i>Farms at Dec. 31</i>
	No.	\$	No.
1955.....	1,742	27.50	669
1960.....	9,067	13.06	531
1965.....	17,109	13.18	556
1966.....	19,133	11.88	653
1967.....	17,368	11.11	937
1968.....	18,854	9.97	1,395
1969.....	18,664	9.15	1,615

In recent years the number of chinchilla farms has increased sharply, due in part to the unwarranted promotion of chinchilla raising as an easy and profitable undertaking by inexperienced persons. Many of the new breeders lack experience in the management of chinchillas and the lower average pelt prices registered in recent years reflect, to some extent, this inexperience.

**Fox.**—In 1970, there were 1,255 fox pelts having an average value of \$31.19 produced on 45 Canadian farms. The principal producers were Ontario, New Brunswick and Prince Edward Island. Fox furs are currently popular in all markets but their use is mainly for garment trimming and there are no indications that fox farming is likely to increase in importance in this country in the foreseeable future.

**Fur Marketing.**—The value of the Canadian fur crop in recent years has ranged between \$35,000,000 and \$40,000,000 and export markets are of major significance in the sale of these furs; about 83 p.c. of the 1969-70 season's production of raw furs was exported, the principal species exported being ranched mink, beaver, hair seal and muskrat. The most important customers were the United States, the United Kingdom, Switzerland and the Federal Republic of Germany.

Most of the world's furs continue to be sold at auction and, in the peak selling period, buyers from other countries frequently make the auction circuit, attending sales in Montreal, North Bay, Winnipeg, Edmonton and Vancouver. Canadian furs are generally sold in the raw state, to facilitate entry into the many countries that maintain tariffs on imports of dressed furs. Even in this press-button age, it is difficult to reduce the amount of manual work that is involved in preparing fur skins for the market. At the auctions the furs are graded, pelt by pelt, and placed in lots, carefully matched as to size, colour and quality. Prior to the auctions these lots are inspected by buyers who examine the skins and record their impressions of values upon which their bids will be based at the time of the auction. The emphasis on hand-work carries right through to the finished garment.

## Section 2.—Fur Statistics

### Subsection 1.—Fur Production and Trade\*

**Total Fur Production.**—Annual figures of raw fur production are based on figures of royalties, export taxes, etc., provided by the game departments of all provinces except Prince Edward Island; those for Prince Edward Island are based on returns by fur dealers in that province. Table 1 shows the fluctuating trend of the fur industry over the past decade. It should be mentioned that, from 1965 on, the figures include hair and fur seal pelts, which in 1970 had a value of \$2,348,863.

**1.—Pelts of Fur Bearing Animals Produced and Percentage Sold from Fur Farms, Years Ended June 30, 1961-70**

Year Ended June 30—	Pelts <sup>1</sup>		Percentage of Value Sold from Fur Farms	Year Ended June 30—	Pelts <sup>1</sup>		Percentage of Value Sold from Fur Farms
	Number	Value			Number	Value	
		\$				\$	
1961.....	6,237,360	28,737,087	59	1966.....	5,507,199	45,622,852	63
1962.....	5,771,129	28,971,077	64	1967.....	5,274,305	35,496,541	64
1963.....	5,123,395	31,943,418	62	1968.....	6,093,598	36,531,035	63
1964.....	4,572,594	35,412,822	63	1969.....	5,537,466	40,960,308	56
1965.....	5,609,025	36,534,609	58	1970.....	5,160,983	34,766,389	54

<sup>1</sup> Seal pelts included from 1965.

Table 2 shows the provincial distribution of fur production. Ontario continues to lead the provinces and territories in this respect, accounting for 27.6 p.c. of the total value in the 1969-70 season compared with 30.8 p.c. in the previous season. Although increased percentages were shown by Newfoundland, New Brunswick, Saskatchewan, Alberta, British Columbia and the Northwest Territories, these were offset by decreases in the other provinces.

**Wild Fur Production.**—The principal kinds of wild fur pelts taken, according to value, are beaver, seal, muskrat and mink. These four kinds accounted for 75 p.c. of the total value of wild pelts produced in 1969-70, beaver alone accounting for 41 p.c. The number of beaver pelts produced was somewhat lower than in the previous year and the average value per pelt decreased from \$18.40 to \$15.09. In fact, the average value of every kind of pelt except bear (white and grizzly), fisher, otter, seal and rabbit, was lower in 1969-70 than in 1968-69.

\* Prepared by the Agriculture Division, Statistics Canada.

### 2.—Pelts of Fur Bearing Animals Produced, by Province, Years Ended June 30, 1969 and 1970

Province or Territory	1969 <sup>1</sup>			1970		
	Pelts	Value	Percentage of Total Value	Pelts	Value	Percentage of Total Value
	No.	\$		No.	\$	
Newfoundland.....	70,226	459,844	1.1	149,101	1,080,053	3.1
Prince Edward Island.....	9,100	127,054	0.3	8,226	87,668	0.3
Nova Scotia.....	146,452	1,903,489	4.6	157,278	1,455,334	4.2
New Brunswick.....	51,752	399,691	1.0	58,798	464,608	1.3
Quebec.....	472,075	4,795,436	11.7	515,614	3,902,825	11.2
Ontario.....	1,489,762	12,639,512	30.8	1,355,778	9,602,664	27.6
Manitoba.....	747,802	5,414,400	13.2	673,349	4,369,848	12.6
Saskatchewan.....	678,150	2,884,827	7.0	706,633	2,726,584	7.8
Alberta.....	856,117	4,360,056	10.6	707,241	4,127,730	11.9
British Columbia.....	539,022	5,509,505	13.4	540,146	4,761,313	13.7
Yukon Territory.....	54,300	104,612	0.3	26,850	70,673	0.2
Northwest Territories.....	364,504	1,159,767	2.8	203,719	1,068,708	3.1
<b>Canada<sup>1</sup>.....</b>	<b>5,537,466</b>	<b>40,960,308</b>	<b>100.0</b>	<b>5,160,983</b>	<b>34,766,389</b>	<b>100.0</b>

<sup>1</sup> Totals include pelts and values not allocated to a province or territory, mainly Alaska fur seal and Atlantic Coast hair seal.

### 3.—Pelts of Wildlife Fur Bearing Animals Taken, by Kind, Years Ended June 30, 1969 and 1970

Kind	1968-69 Fur Season			1969-70 Fur Season		
	Pelts	Total Value	Average Value	Pelts	Total Value	Average Value
	No.	\$	\$	No.	\$	\$
Badger.....	1,215	15,204	12.51	4,084	47,861	11.72
Bear—						
White.....	404	62,850	155.57	326	72,751	223.16
Black or brown.....	3,076	83,871	27.26	3,085	78,803	25.54
Grizzly.....	6	459	76.50	30	3,233	107.76
Beaver.....	437,875	8,056,118	18.40	433,408	6,540,375	15.09
Cougar.....	—	—	—	22	594	27.00
Coyote or prairie wolf.....	33,067	447,052	13.52	31,467	409,693	13.01
Ermine, weasel.....	106,009	107,472	1.01	86,406	59,663	0.69
Fisher.....	7,627	142,414	18.67	8,146	171,769	21.09
Fox—						
Blue.....	68	1,229	18.07	114	1,319	11.57
Cross and red.....	39,170	501,445	12.80	45,797	505,170	11.03
Silver.....	532	10,882	20.45	475	6,588	13.86
White.....	20,231	316,894	15.66	7,363	103,859	14.11
Not specified.....	50	552	10.64	37	352	10.32
Lynx.....	20,677	644,296	31.16	37,477	971,605	25.93
Marten.....	64,803	538,570	8.31	58,521	473,826	8.10
Mink.....	120,935	1,637,517	13.54	108,758	1,067,028	9.81
Muskrat.....	1,754,393	2,339,330	1.33	1,601,870	1,932,453	1.21
Otter.....	16,868	455,045	26.98	17,645	490,944	27.82
Rabbit.....	57,651	26,679	0.46	45,350	21,978	0.48
Raccoon.....	47,635	301,234	6.30	51,288	199,305	3.89
Seal—						
Fur, North Pacific <sup>1</sup> .....	13,318	814,481	61.16	10,371	663,189	63.94
Hair.....	139,152 <sup>1</sup>	967,738 <sup>1</sup>	6.95 <sup>1</sup>	210,802	1,685,674	8.00
Skunk.....	199	91	0.46	343	141	0.41
Squirrel.....	958,710	435,367	0.45	589,933	240,111	0.41
Wildcat.....	3,266	66,243	20.28	4,118	58,178	14.12
Wolf.....	1,518	42,170	27.78	2,397	55,715	23.24
Wolverine.....	530	20,968	39.56	597	22,942	38.42
<b>Totals.....</b>	<b>3,849,385<sup>1</sup></b>	<b>18,036,151<sup>1</sup></b>	<b>...</b>	<b>3,360,230</b>	<b>15,885,152</b>	<b>...</b>

<sup>1</sup> Commonly known as Alaska fur seal; value figures are the net returns to the Federal Government for pelts sold.



**Fur Farm Production.**—Mink accounts for almost the entire value of fur farm production. In 1970, the number of mink pelts taken was 1,494,000 with a value of \$14,420,000. Mink farms decreased in number from 1,017 to 836 and the number of animals on farms at year-end was 455,300 compared with 572,743 a year earlier. Because of the small numbers involved, coverage of nutria and chinchilla has been discontinued.

#### 4.—Mink Farms and Value of Pelts Produced Thereon, by Province, 1968-70

Province	Mink Farms at Year-End			Value of Mink Pelts Produced on Fur Farms		
	1968	1969	1970	1968	1969	1970
	No.	No.	No.	\$'000	\$'000	\$'000
Newfoundland.....	17	12	5	184	132	108
Prince Edward Island.....	9	9	7	110	75	97
Nova Scotia.....	128	149	140	1,641	1,241	1,141
New Brunswick.....	14	17	16	155	155	125
Quebec.....	75	70	58	1,860	1,595	1,520
Ontario.....	354	331	278	7,674	6,067	5,105
Manitoba.....	128	108	80	2,827	2,322	1,347
Saskatchewan.....	75	53	38	1,067	935	636
Alberta.....	120	93	78	2,375	2,079	1,390
British Columbia.....	227	175	136	4,795	4,049	2,950
<b>Totals.....</b>	<b>1,147</b>	<b>1,017</b>	<b>836</b>	<b>22,690<sup>1</sup></b>	<b>18,650</b>	<b>14,419</b>

<sup>1</sup> Includes value of some pelts not allocated by province.

#### 5.—Number and Value of Mink Pelts Produced on Fur Farms, by Kind, 1968-70

Mink	1968		1969		1970	
	Pelts	Value	Pelts	Value	Pelts	Value
	'000	\$'000	'000	\$'000	'000	\$'000
Standard.....	382	6,218	455	5,530	478	5,094
Grey.....	42	546	46	389	28	222
Dark blue.....	54	648	33	361	33	339
Light blue.....	374	5,039	404	4,270	288	2,847
Brown.....	527	6,770	562	5,632	508	4,630
Beige.....	231	2,872	236	2,148	139	1,138
White.....	58	595	42	320	20	148
<b>Totals.....</b>	<b>1,668</b>	<b>22,690</b>	<b>1,779</b>	<b>18,650</b>	<b>1,494</b>	<b>14,420</b>

**Exports and Imports.**—Canadian fur exports consist largely of those kinds produced in greatest abundance, mink being by far the most valuable followed by beaver, seal, fox, and muskrat. Mink, Persian lamb, dressed seal, dressed sheep and lamb, fox and raccoon make up a large part of the imports. Exports and imports of furs, undressed, dressed and manufactured, to and from Britain, the United States and all countries, are given for the years 1969 and 1970 in Table 6.

**6.—Exports and Imports of Furs, by Kind, 1969 and 1970**

Kind of Fur	1969			1970		
	Britain	United States	All Countries	Britain	United States	All Countries
<b>EXPORTS</b>						
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Undressed—						
Beaver.....	2,974	2,044	8,644	1,705	1,094	6,132
Chinchilla.....	—	255	255	—	143	143
Ermine or weasel.....	65	10	75	40	2	42
Fisher.....	36	99	164	27	159	217
Fox, all types.....	242	974	1,377	243	417	758
Lynx.....	47	329	429	130	310	528
Marten.....	180	413	766	188	521	778
Mink.....	1,981	9,712	15,203	1,087	8,974	13,686
Muskrat.....	1,824	59	1,949	1,428	73	1,706
Otter.....	15	115	287	13	155	380
Rabbit.....	—	7	8	—	14	21
Seal.....	1,519	18	2,534	675	122	2,119
Squirrel.....	507	—	507	214	—	216
Wolf.....	95	167	287	154	88	285
Other.....	165	524	892	135	126	605
Dressed—						
Mink.....	23	116	545	2	157	778
Raccoon.....	—	9	9	—	11	13
Fur plates, mats, etc.....	—	21	55	26	49	115
Other.....	34	1,059	1,734	68	647	1,473
Fur goods apparel.....	1,570	8,292	21,661	1,094	3,737	19,443
<b>Totals.....</b>	<b>11,277</b>	<b>24,223</b>	<b>57,381</b>	<b>7,229</b>	<b>16,799</b>	<b>49,438</b>
<b>IMPORTS</b>						
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Undressed—						
China and Jap mink.....	202	—	345	200	—	458
Fox.....	618	980	2,633	328	419	1,726
Kolinsky.....	49	14	107	31	7	68
Mink.....	1,331	2,145	9,268	1,298	1,967	8,698
Muskrat.....	2	2,154	2,202	—	1,803	1,803
Persian lamb.....	208	491	1,030	102	186	579
Rabbit.....	12	37	221	—	2	2
Raccoon.....	11	2,768	2,784	7	1,617	1,635
Other.....	203	1,870	3,877	158	970	2,704
Dressed—						
Hatters' furs.....	16	414	624	—	109	173
Mink.....	10	1,210	1,412	19	1,353	1,385
Seal.....	1	2,120	2,344	8	1,584	1,703
Sheep and lamb.....	623	385	1,882	479	333	1,205
Fur plates, mats, etc.....	444	273	1,652	139	121	922
Other.....	300	942	1,809	117	661	1,177
Fur goods apparel.....	576	343	1,620	172	142	760
<b>Totals.....</b>	<b>4,606</b>	<b>15,846</b>	<b>33,810</b>	<b>3,058</b>	<b>11,274</b>	<b>24,998</b>

### Subsection 2.—The Fur Processing Industry

The general term "fur processing" includes the fur dressing and dyeing industry and the fur goods industry. The former is concerned with the dressing or dyeing of pelts on a custom basis and the latter is a manufacturing industry that makes up fur goods such as coats, scarves and gloves. Tables 7 and 8 give selected statistics for these industries on the "total activity" basis (see Chapter XV on Manufactures) for 1965-69.

#### 7.—Principal Statistics of the Fur Dressing and Dyeing Industry, 1965-69

Item		1965	1966	1967	1968	1969
Establishments.....	No.	17	15	18	19	18
Administrative and Other Salaried Employees—						
Male.....	No.	85	82	67	86	74
Female.....	"	25	22	22	24	27
Salaries paid.....	\$'000	780	821	754	1,008	1,100
Production and Related Employees—						
Male.....	No.	689	612	488	511	521
Female.....	"	129	105	85	77	82
Wages paid.....	\$'000	3,469	3,263	2,916	3,453	3,571
Cost of materials used in manufacturing.....	\$'000	1,696	1,433	1,189	1,651	1,933
Pelts treated.....	'000	5,219	5,264	4,416	5,161	..
Amount received for treatment of furs and other manufacturing revenue.....	\$'000	7,927	6,953	6,510	7,671	8,213

#### 8.—Principal Statistics of the Fur Goods Industry, 1965-69

Item		1965	1966	1967	1968	1969
Establishments.....	No.	406	406	401	390	395
Administrative and Other Salaried Employees—						
Male.....	No.	465	422	403	376	379
Female.....	"	179	156	164	158	173
Salaries paid.....	\$'000	3,506	3,516	3,611	3,628	3,859
Production and Related Employees—						
Male.....	No.	1,454	1,418	1,403	1,445 <sup>c</sup>	1,470
Female.....	"	727	699	673	696 <sup>c</sup>	809
Wages paid.....	\$'000	9,552	9,624	10,183	10,743 <sup>c</sup>	11,781
Cost of materials used in manufacturing.....	\$'000	41,218	42,186	41,948	43,858	48,000
Value of factory shipments and other manufacturing revenue.....	\$'000	64,707	65,963	67,372	69,615	77,152
Total revenue.....	\$'000	66,892	67,942	69,454	71,445	79,550

### Section 3.—Provincial and Territorial Fur Resource Management

Most of the fur resources of the provinces and territories of Canada are under the administration of their respective governments. Exceptions include those resources within the boundaries of the national parks and the Indian reserves, which are under the administration of the Federal Government. Descriptions of provincial and territorial wildlife conservation measures, which include fur resource management practices, are given in Part IV of this Chapter.



## PART IV.—WILDLIFE RESOURCES AND CONSERVATION\*

Wildlife is an important renewable natural resource. The original inhabitants of what is now Canada depended on it for food and clothing and still do in some remote areas. The coming of the Europeans brought development of the fur trade which guided the course taken in exploring and settling the land as we know it today. When the country was being opened up, a number of mammals and birds became seriously depleted or extinct. As settling progressed, wildlife habitat was reduced by cutting and burning of forests, pollution of streams, industrial and urban development, drainage of wetlands, building of dams, and other changes in the land.

Today, the arctic and alpine tundra, a major vegetational region, has begun to show serious man-made changes. The adjacent sub-arctic and sub-alpine non-commercial forests have been affected principally by increased human travel which causes more forest fires, although the great forests farther south retain much of their original character, despite exploitation. Cultivable lands, originally forest or grass land, have completely changed but they have, in some cases, become more suitable than the original wilderness for some forms of wildlife. The harvestable surplus of game and fur species across Canada is seldom fully utilized and wildlife will remain generally abundant where habitat is preserved and management enlightened.

Today, Canada is known for its varied and abundant wildlife. It maintains most, or all, of the world's stock of woodland caribou, mountain sheep, wolves, grizzly bears and wolverines. These animals exist because of the vast habitat and because of the efforts that have been made to preserve them.

In 1885, the Rocky Mountain Park (now Banff National Park) was established in Alberta, preserving an area of over 2,500 sq. miles in its natural state; in 1887, the Continent's first bird sanctuary was established at Last Mountain Lake in Saskatchewan; in 1893 when wood bison faced extinction, laws were passed to protect them; and in 1907, a nucleus herd of plains bison was established at Wainwright in Alberta. These were among the early attempts at wildlife conservation in Canada.

For a long time, certain species were protected from man and predator. Now, having a better understanding of how nature works, it is recognized that many factors combined cause fluctuations in wildlife numbers, and hunting seasons and bag limits are based to a greater extent on environment. Given a fully stocked environment, the annual increase need only replace the losses. Surplus production can therefore be safely taken by predatory animals or, in case of game species, by man.

As a natural resource, wildlife within each province comes under the jurisdiction of the provincial government. However, the Federal Government does have responsibility for wildlife on federal land, for research and management of species that have a wide range, and for species that are covered by international treaty, such as the Migratory Birds Treaty between Canada and the United States.

### The Canadian Wildlife Service

The Canadian Wildlife Service (CWS) began as an agency to administer the Migratory Birds Convention Act passed in 1917. It was organized in 1947 to meet the need for scientific research in wildlife management and is now a branch of the Department of the Environment.

The CWS conducts scientific research into wildlife problems in the Northwest Territories, the Yukon Territory and the national parks. It advises agencies concerned with wildlife management and co-operates in carrying out recommendations; it advises on and co-ordinates administration of the Game Export Act in the provinces; it co-operates with agencies in Canada and abroad in dealing with national and international problems related to wildlife resources. As administrator of the Migratory Birds Convention Act, the CWS

\* Prepared by the Policy, Planning and Research Service, Department of the Environment, from data received from the provincial authorities concerned.

is responsible for recommending the annual revision of the Migratory Birds Regulations which govern open seasons, bag limits and hunting practices. This it does in consultation with provincial wildlife agencies. Enforcement of the Act and Regulations is carried out by the Royal Canadian Mounted Police, with CWS and provincial co-operation.

The loss of wetlands to drainage and filling for agricultural and other purposes poses a serious threat to waterfowl and, to counteract this, the CWS co-operated with provincial agencies in a major program, started in 1967, to preserve wetlands by purchase and long-term lease. By 1971, 45,000 acres had been bought for \$4,000,000 and 69,000 acres had been re-leased for \$318,000. In addition, the CWS operated 96 bird sanctuaries having a total area of 46,000 sq. miles.

The CWS conducts two annual surveys of waterfowl hunters selected from the 400,000 holders of the Canada migratory game-hunting permits. These surveys provide the CWS with estimates of the species and age of the major game species taken by hunters. Other continuing projects related to migratory game birds include an annual survey of crop damage in the Prairie Provinces, annual surveys of waterfowl populations and habitat conditions in Western Canada, a program to reduce bird hazards at airports, and a search for a substitute for lead shot which each year causes lead poisoning and subsequent death of a large number of waterfowl. Bird-banding provides valuable information on the migration and the biology of birds, and is especially useful in waterfowl management. The CWS headquarters in Ottawa keeps sets of continental banding records and controls the activities of banders operating in Canada. Much attention has been given to species greatly reduced in number or in danger of extinction. By 1971, 21 eggs had been taken from whooping crane breeding grounds and delivered for incubation to the Patuxent Wildlife Research Center in Maryland. Eventually, the progeny from these 21 chicks will be released into the wild but only after a sufficiently large supply of breeding birds has been developed.

Four studies of the population of barren-ground caribou were conducted from 1966 to 1968 in the Keewatin District of the Northwest Territories and in northern Manitoba. The first report is scheduled for publication by the CWS in 1972. The latest estimate of the four major populations of barren-ground caribou in the Northwest Territories was 400,000.

Ecological studies, particularly in areas where development might disturb wildlife habitat, are under way on all types of mammals and include habitat mapping in the Northwest Territories, in the Peace-Athabasca delta of Wood Buffalo National Park, and in several river basins. Toxic chemicals, such as pesticides and industrial compounds, released into the environment in ever-increasing quantities, may produce immediate or long-term effects on wildlife populations. Toxic chemical research aims at finding and measuring these effects so that hazards of such compounds may be more clearly understood. Populations of fish, amphibians, small mammals and their mammalian predators as well as of song, raptorial and aquatic birds are under study.

In 1970, the CWS opened the Wye Marsh Wildlife Centre at Midland, Ont., which was set up to inform Canadians about the forces that shape the land with special emphasis on wildlife, and about man and his environment and how one affects the other. The surrounding 2,500 acres of marsh, forest and overfields are owned and managed by the Ontario Department of Lands and Forests. The Centre is the first of 10 to be situated in such ecologically distinctive areas as the prairies, the northern woods, the Atlantic shores and the desert-like valleys of the western mountains.

The CWS has been participating in the Canada Land Inventory which is a federal-provincial program to gather information on how land in the settled parts of Canada (1,250,000 sq. miles) is being used, and how best it could be used for agriculture, forestry, recreation and wildlife.

Research in limnology includes inventory and productivity of lakes and rivers in the national parks and the biology of fish in associated flora and fauna. Adequate stocks of fish are maintained through modern methods of management, where they can be applied without detriment to the values of the areas concerned.

### Provincial Wildlife Conservation and Management\*

**Newfoundland.**—The functions of the Newfoundland Wildlife Service are: to maintain all indigenous species from extinction and to provide other species where suitable unused habitat exists, always bearing in mind the real and aesthetic values of wildlife that are important to man; to maintain all species in the greatest number possible, consistent with the habitat needs of the species, without serious conflict with the other resource needs; and to provide and regulate the harvest surplus of wildlife populations for the use of the people.

The Wildlife Service manages big game almost solely through the manipulation of hunting regulations based on population data gathered from field studies and hunter questionnaires as well as the transplant of caribou and moose to unoccupied range and the predator controls of lynx around caribou calving grounds. This program has been responsible for a fairly healthy population of animals. Black bear, the only other big game species, have increased in numbers over the past five years and a trapping program is currently in progress to gain information on their distribution and movements. Research is being conducted on the ecology and biology of small game species to prepare for the time when the harvest must be increased to satisfy hunter demand. Habitat management for ptarmigan is under consideration; waterfowl management is conducted by federal authorities.

The wild fur industry in Newfoundland, as elsewhere, has been characterized by short-term instability and a long-term decline period. In general, the price of furs has declined in the past decade and, since the supply of trappers is partially determined by the profit motive, the number of trappers has also declined. As a result, the fur bearers of the province are now considered to be under-harvested. Research and management of the Newfoundland wild fur industry is at present in progress in an effort to exploit this resource more fully. There is no quota for fur bearers other than the beaver for which the quota is 20 beaver per trapper. Studies were started during 1971 on two endangered species—the pine marten and the arctic hare. These studies will provide the basis for a management program to ensure their continued survival.

**Prince Edward Island.**—Wildlife conservation and management programs in Prince Edward Island, mainly concerned with game birds, are conducted by the Fish and Wildlife Division of the provincial Department of Tourist Development. Seasons and bag limits on game species are scientifically adjusted and efforts are being intensified to enforce the regulations established in order to protect species from over-exploitation. The Division operates a reserve offering pheasant and controlled goose shooting, which serves to reduce pressure on other game species. The province is in the process of establishing several waterfowl sanctuaries which will supplement the protection provided by the two federal sanctuaries in the province and is also attempting to improve the habitat for wildlife production by cutting practices, evaluation of hedgerow plants, etc.

**Nova Scotia.**—The Wildlife Division of the Department of Lands and Forests conducts research and management programs, the results of which will help to ensure that the wildlife resource will continue to contribute to the mental, physical and economic well-being of the people of Nova Scotia.

Big game species in the province are undergoing studies by which data are compiled annually on the harvest patterns, age and sex ratios, reproduction, behaviours, etc. Wild fur bearers include beaver, muskrat, mink, otter, wildcat, lynx, fox, raccoon and weasel and these provide a supplementary income for some 3,500 persons who harvest from \$100,000 to \$200,000 worth of wild furs annually. At present, most attention is directed toward the beaver which is the most valuable fur bearer taken. The Trappers Association of Nova Scotia is organized so that persons closest to the resource may have some say in its

\* Prepared by the Department of the Environment from data supplied by the provincial authorities concerned.



wise use and management. One of the aims of the Association is to promote improved marketing and handling of the raw furs taken by trappers so as to upgrade over-all fur quality and thus command more profitable market prices for trappers.

Migratory bird management is shared jointly by the Canadian Wildlife Service and the provincial Wildlife Division. Established programs relevant to population inventories, banding, harvest levels, etc., are conducted on an annual basis by the Division. All major waterfowl areas in the province have been carefully evaluated, including the offshore islands which possess unique ecological features, with the objective of retaining them for the benefit of future generations, and several large waterfowl areas are now owned by the province. The role played by Ducks Unlimited (Canada) has been extremely valuable in establishing a successful program of waterfowl habitat improvement in Nova Scotia. Various techniques are employed annually to determine population levels and other factors of upland game species that are essential when formulating proposals aimed at the wise use and management of the resource.

There are 19 federal and provincial areas in Nova Scotia totalling about 500,000 acres of land and water where wildlife is protected. Among them is the Provincial Wildlife Park at Shubenacadie, where a program of studies relating to parasites and disease and the rearing of wildlife for release is a feature additional to its function as a recreational and educational park. Mention should also be made of the very important role of Acadia University in the provincial wildlife program. Various research programs conducted by that institution and the free exchange of ideas between the two agencies have greatly enhanced the resource management efforts in Nova Scotia.

**New Brunswick.**—The management of wildlife in New Brunswick is under the jurisdiction of its Department of Natural Resources. In recent years, deer management zones have been established in an attempt to control the distribution of hunting pressure on this animal. Biological studies of the white-tailed deer are being conducted, including the ecology of winter and spring habitat, aerial census of winter populations and an annual population analysis based on deer registration data. Also, a moose management program is under way which includes many restrictions and regulations in the administration of this limited wildlife resource. Biological studies indicate that its population has improved significantly in numbers and condition under the controlled hunting program.

Beaver, muskrat and bobcat are the three most important fur bearing animals in the province. During the early 1900s, beaver became scarce but, as a result of protection, they increased rapidly in numbers so that now there is no limit imposed on the trapping of these animals. Each autumn, an aerial survey of active colonies of beaver is conducted over about 4,000 stream-miles to keep a continuing record of their prevalence.

There is, at the present time, no limit on the trapping of any wild fur bearer in the province. The trapping of fisher and marten was permitted during the 1964-65 season for the first time since 1946. These animals, found mainly in the northern part of the province, appear to be increasing in number and extending their range southward. Currently, investigations are continuing into the ecology of fisher and marten as well as of beaver and muskrat.

During 1971, a new system of estimating hunting effort and harvest information for game birds was undertaken and found to provide more reliable data than were previously available. Closed seasons for certain species are invoked, sometimes on short notice, when considered necessary for preservation reasons. Management practices in New Brunswick for migratory birds have been limited for the most part to co-operative programs with other agencies, particularly the Canadian Wildlife Service. Examples of the projects under way are the woodcock singing ground census and the co-operative waterfowl banding program. In 1970, a grouse management plan was organized, and methods and mechanical procedures for selected projects were evaluated.

**Quebec.**—The management and protection of wildlife within Quebec is a function of the Fish and Game Branch of the Department of Tourism, Fish and Game. The Branch

has two Services, one dealing with wildlife management and the other with conservation. The Wildlife Service is responsible for management, particularly of those species of interest to hunters and fishermen. The work of staff biologists, who are assigned to geographical units known as management districts, includes the collection of precise data on animal populations and habitats in the respective areas. In connection with the management of the fisheries resources, wildlife managers have recourse to the services and resources of the Fisheries Stations Division and the Technology and Engineering Services Division; the former operates four provincial hatcheries, inspects commercial hatcheries, and controls the importation of fish eggs and species of salmon brought in for propagation. The Wildlife Service also administers and maintains the Quebec Zoological Gardens. The Conservation Service works closely with the Wildlife and Parks Services and is responsible for enforcing fishing and hunting regulations and for informing the public of the existence of such regulations and of their scope and importance. The Wildlife Conservation Act, which came into force in December 1969, is intended to protect fish and wild animal species within the province.

**Ontario.**—The objective of recreational wildlife management programs in Ontario is the provision of high-quality wildlife hunting and viewing opportunities for as many residents as possible.

The most important factor limiting deer numbers in Ontario appears to be the decreasing extent of deer range. An important aspect of the management program is the improvement and increase of existing winter range. Moose management is concentrated on intensive production and harvest inventory and evaluation of the effect of various forest practices on moose range. Ultimately, moose range and forest management will be integrated in such a way as to optimize both fibre and moose production.

Upland game management is directed toward realization of maximum recreational opportunities on a day-use basis for hunters as well as for naturalists interested in small game and non-game species. Management practices include increasing the production of small game through habitat management and provision of accurate predictions of the annual availability of small game. Waterfowl banding is important in developing a reasonable management program for an international resource. Re-establishment of a breeding population of the giant Canada goose in southern Ontario is a specialized part of the Ontario migratory bird program.



A Conservation Officer in northern Ontario tagging a mallard duck, one of about 15,000 waterfowl tagged each year in the province. This is but one of the many varied tasks he performs in his capacity as a protector, conservator and manager of the wildlife in his area.

The wildlife management areas that have been established provide opportunities for nature study and hunting in southern Ontario, where virtually all lands are privately owned. Their existence also ensures preservation of valuable wetlands.

Much of the effort in Ontario in managing wild fur bearers is directed to beaver which at the present time are very abundant throughout the province. On Crown lands, there are some 2,300 registered traplines for which beaver harvest quotas are set annually. These quotas serve an important role in maintaining a sustained yield of this valuable species. Other important species sought by the trappers are also those that live in or around water—muskrat, otter and mink. Collectively, these four species make up about 90 p.c. of the total value of the fur harvest in the province which varies from \$3,500,000 to \$5,500,000.

The Department of Lands and Forests, responsible for the management of wildlife in Ontario, conducts trappers' meetings regularly throughout the province where new traps and trapping techniques are discussed. Some of the trappers belong to trappers' councils and a large proportion of them are members of the Ontario Trappers' Association, which operates an auction house at North Bay.

**Manitoba.**—The Manitoba Department of Mines, Resources and Environmental Management has the primary responsibility for the conservation of wildlife stocks in the province. Authority to do so is provided by provincial legislation (the Wildlife Act and the Predator Control Act), although the federal Migratory Birds Convention Act is the authoritative legislation in the conservation of waterfowl and other migratory species. The Wildlife Act provides legal protection for all animals and birds that are part-time or full-time winter residents of the province. The Migratory Birds Convention Act protects migratory game birds, migratory insectivorous birds and migratory non-game birds. The Predator Control Act is the legal basis for authorizing control measures on predatory animals.

The Department of Mines, Resources and Environmental Management has four Divisions; each has some responsibility for wildlife conservation and each is multi-disciplinary in nature, having a staff responsible for one of the important natural resources. The Research Branch of the Division has a staff of biologists working on problems in the fur bearer, the game bird and the big game areas of the wildlife field.

The Resources Management Division is subdivided into four administrative regions which cover the whole province, and a co-ordinating head office. The director in charge of each region is responsible for the field administration of the entire wildlife program in his area and for the enforcement of the wildlife laws and regulations. Each region is involved to some extent in habitat preservation. Eight wildlife management areas established on Crown land distributed across southern, western and northern Manitoba are designated for primary use by wildlife, although other compatible land-use activities are also permitted. In addition, there is a major concentration of wildlife management areas in the Interlake District, established under the ARDA and FRED federal-provincial cost-sharing programs. These programs provide funds for detailed land-use studies and for major land adjustments resulting from these studies. Regulations covering wildlife harvesting are established each year by discussion.

**Saskatchewan.**—Before 1945, little was done to control the trapping of beaver and muskrat in Saskatchewan, other than to establish close season when the fur bearers became depleted from over-trapping, and the lack of conservation and management policy had a disastrous effect upon the fur resources and the livelihood of trappers. In 1946, under federal-provincial agreement, all Crown lands north of the 53rd parallel were set up as the Northern Fur Conservation Block. Up to \$50,000 a year was to be expended over the following 10 years to establish and administer conservation areas, purchase equipment, pay salaries of personnel, transplant live beaver and build dams; the Federal Government agreed to assume 60 p.c. of the cost and the province the remainder. A Fur Advisory Committee, with representation from the provincial Department of Natural Resources and the (then) federal Indian Affairs Branch was set up to supervise the program. Organ-



ization of conservation areas was left to the trappers. Five-man councils were elected in all districts, with Indian, metis and white trappers sharing privileges, obligations and responsibilities on an equal basis. Conservation measures and licensing regulations were initiated. Since 1946, the agreement has been extended several times until 1972 and the sharable amount raised to \$120,000. This Northern Fur Conservation program has served to encourage the people involved to plan and carry out other programs vital to their well-being, but it is expected that it will soon be replaced by a new agreement. Both governments feel that the scope of such an agreement should cover a wider range of renewable resources, such as fisheries, forestry and outdoor recreation, in addition to the wildlife resource.

**Alberta.**—The conservation and management of wildlife resources in Alberta are under the jurisdiction of the Fish and Wildlife Division of the Department of Lands and Forests, which has been undergoing reorganization over the past two years. Meetings are held with registered trappers to increase the exchange of information between them and the Division's officers and an intensive program is being initiated to eliminate, as far as possible, the misuse of trapping areas and to form them into more economical units.

The major shift in wildlife operations in the past two years has been toward a number of key projects, most of which are of two-year or three-year duration. These include studies on the effects of industrial development on wildlife, experimental techniques to lure waterfowl off problem areas into a variety of "baited" field and feeding stations, domestic cattle-wildlife ranges, range conditions, experimental shelterbelt planting for upland game birds, waterfowl programs such as banding and transplanting, and animal movement and population trends. Collection of upland game birds for pesticide residue analysis continued in 1971. Field surveys and mapping under the Canada Land Inventory program continued during the year.

**British Columbia.**—The wildlife resources of British Columbia are administered under authority of the Wildlife Act, 1966 by the Fish and Wildlife Branch of the Department of Recreation and Conservation. Most of the over-all planning and co-ordination of wildlife management activities in the province takes place in the headquarters of the Wildlife Management Division but the actual management is carried out in seven regions, in each of which the resident biologist has responsibility for the planning, supervision and overseeing of the wildlife management projects in his own region.

Wildlife management includes the assessment and protection of wildlife populations and their habitat, the regulation and statistical documentation of public use of the wildlife resource, the collating and distribution of information pertaining to wildlife, both regionally and provincially, the regulation and control of wildlife imports and exports, and active participation with and advice to related government agencies indirectly involved with the wildlife resource.

The wild fur resource is managed under a registered trapline system in effect since 1926. Registered traplines are areas of Crown land allotted, for the purpose of trapping wild fur, to trappers who are resident in the province. Registration of a trapline is renewable on an annual basis by the trapper, subject to certain requirements of 10 years aimed at conservation in sustained yield of the fur species.

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## CHAPTER XIV.—ELECTRIC POWER\*

### CONSPECTUS

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*The interpretation of the symbols used in the tables throughout the Year Book  
will be found on p. vii of this volume.*

### Section 1.—Electric Power Development

#### Subsection 1.—Historical and Current Trends in Power Development

Electric power development in Canada has undergone remarkable and sustained growth since the beginning of the century. From a modest 133,000 kilowatts of generating capacity installed at the end of 1900, Canada's installed hydro capacity rose to 28,304,000 kw. by the end of 1970 and thermal capacity to 14,325,000 kw.

Thermal-electric power development in Canada was not well documented early in the century but it is apparent that its growth was slow and of relatively minor importance until the late 1940s. The rate of development of hydro facilities, on the other hand, tended to accelerate after the turn of the century when improvements in electric power transmission techniques were introduced and increasing emphasis began to be placed on the construction of large hydro-electric stations.

During the prosperous 1920s, demand for electricity became heavier and the rate of installation increased appreciably. Then, under the depressed conditions of the early 1930s, power demand dropped off but did not show up immediately as a drop in the installation rate because of the time lag inherent in hydro-electric power development. The completion of hydro projects initiated prior to the depression period accounted for the continuation of a high rate of capacity installation up until 1935; thereafter, poor economic conditions in the 1935-39 period resulted in a reduced rate.

In the early war years, the tremendous demand for power to drive Canada's war industries accounted for the sharp rise in installation of new generating facilities between 1940 and 1943, but in the later war years construction dropped off so that, from 1944 to 1947, a second flattening occurred in the growth curve. After the War, industrial expansion and rapidly growing residential and agricultural development placed extremely heavy demands on power generating facilities. To stay abreast of these demands required

\* Sections 1 and 2 of this Chapter were prepared by the Energy Development Sector of the Department of Energy, Mines and Resources, Ottawa; Sections 3 and 4 were revised by the Energy and Minerals Section of the Manufacturing and Primary Industries Division, Statistics Canada, and Section 5 by the various provincial Commissions concerned.

the installation of new capacity at a rate higher than at any time in Canada's history. These demands also led to the start of an extensive program of thermal plant construction in the early 1950s, since they could not be satisfied from hydro sources alone. In 1956, thermal generation represented 14 p.c. of installed capacity. Since then, the annual installed capacity has averaged 56 p.c. hydro-electric and the remainder in thermal generation with the result that at the beginning of 1971 thermal generation accounted for 34 p.c. of Canada's installed capacity.

Table 1 shows the status of installed generating capacity in hydro and thermal stations and the combined total for all stations as at Jan. 1, 1971.

**1.—Installed Hydro- and Thermal-Electric Generating Capacity,  
by Province, as at Jan. 1, 1971**

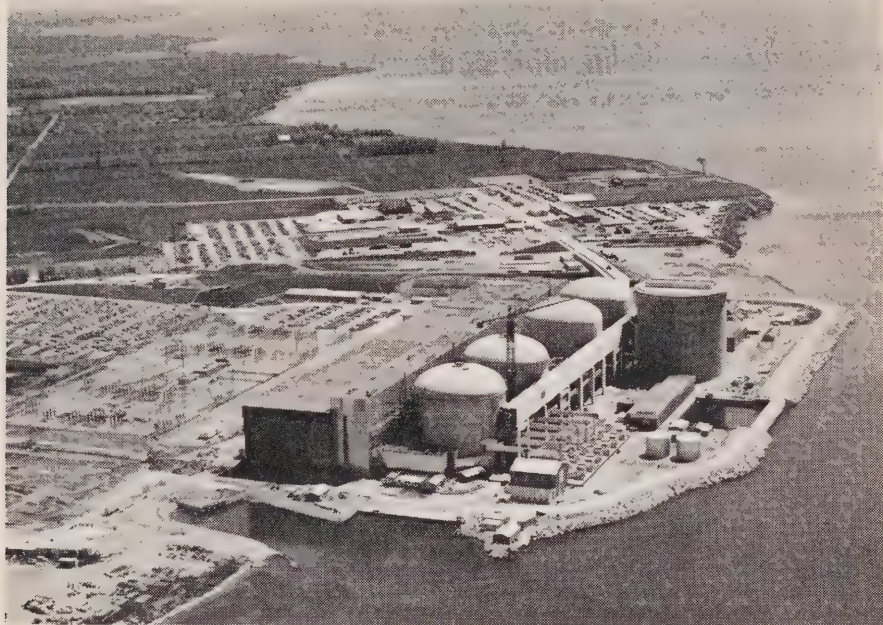
Province or Territory	Hydro	Thermal	Total
	kw.	kw.	kw.
Newfoundland.....	972,000	279,000	1,251,000
Prince Edward Island.....	—	77,000	77,000
Nova Scotia.....	163,000	763,000	926,000
New Brunswick.....	563,000	630,000	1,193,000
Quebec.....	13,279,000	744,000	14,023,000
Ontario.....	6,797,000	6,819,000	13,616,000
Manitoba.....	1,319,000	472,000	1,791,000
Saskatchewan.....	586,000	952,000	1,538,000
Alberta.....	616,000	2,068,000	2,684,000
British Columbia.....	3,948,000	1,460,000	5,408,000
Yukon Territory.....	26,000	21,000	47,000
Northwest Territories.....	35,000	40,000	75,000
<b>Canada.....</b>	<b>28,304,000</b>	<b>14,325,000</b>	<b>42,629,000</b>
Capacity as at Jan. 1, 1970.....	27,033,000	12,515,000	39,548,000
Percentage increase during 1970.....	4.7	14.5	7.8

**Current Trends.**—Although water power traditionally has been and still is the main source of electric energy in Canada, thermal sources some day will undoubtedly become the main supplier. The choice between development of a hydro-electric power site and construction of a thermal generating station must take into account a number of complex considerations, the most important of which are economic in nature. In the case of a hydro-electric project, the heavy capital costs involved in construction are offset by maintenance and operating costs considerably lower than those for a thermal plant. The long life of a hydro plant and the dependability and flexibility of operation in meeting varying loads are added advantages. Also important is the fact that water is a renewable resource. The thermal station, on the other hand, can be located close to the demand area, with a consequent saving in transmission costs. With the current trend to large steam stations, however, a certain amount of the flexibility of location of thermal stations is lost because such units require considerable quantities of water for cooling purposes, making it essential that they be sited close to an adequate water supply.

The marked trend to thermal development which became apparent in the 1950s can be explained in part by the fact that, by that time in many parts of Canada, most of the hydro-electric sites within economic transmission distance of load centres had been developed and planners had to turn to other sources of electric energy. More recently, however, advances in extra-high-voltage transmission techniques are providing a renewed impetus to the development of hydro power sites previously considered too remote.

Thermal power generation may use fossil fuels or nuclear fuels as the sources of energy. The fossil fuels—coal, gas or oil—can be obtained economically from domestic sources in some parts of Canada. In other regions the cost of transportation leads to the use of im-





*Pickering nuclear power station became part of the regular Ontario Hydro grid in the summer of 1971 when reactor one was declared in-service a month ahead of schedule. When all four reactors are operating in 1973, the station will produce more than 2,000,000 kw. of electricity. The natural uranium, heavy-water reactor design is uniquely Canadian.*

ported fossil fuels. Nuclear fuels are providing an increasingly important source of energy for thermal power plants and will be especially attractive for those regions where fossil fuel costs are relatively high and where the power system permits the use of very large generating units which show the best economic advantage for nuclear plants. The CANDU reactor system, which is providing the heat source for Canadian nuclear plants, allows the use of natural uranium mined and processed in Canada.

Because of the relatively long starting-up time required by large thermal units, thermal stations tend to lack flexibility of operation and can be used most efficiently to meet continuous load conditions. Hydro stations, on the other hand, can put generating units on line with minimum delay and hence are admirably suited to supply power to meet the peak loads which may occur several times each day. This applies mainly to hydro plants located close to load centres where peaking operation does not require substantial extra transmission cost. By combining the advantages of both hydro and thermal stations in integrated supply systems, power producers are now achieving much greater flexibility of operation.

Another trend in development designed to meet the problem of varying daily loads is the use of pumped storage. An example is the Sir Adam Beck hydro development at Niagara Falls where water taken from the Niagara River above the Falls is carried by tunnel and power canal to penstocks which supply the main generating station on the bank of the Niagara River some distance below the Falls. In off-peak hours, power from the main station is used to pump water from the power canal into a reservoir maintained at a higher level; during peak-load hours, the pumps, which are dual-purpose units, operate

as generators and are driven by water released from the reservoir. The pumping-generating units at this development make available an extra 176,700 kw. of generating capacity. A pumping-generating station using the same general principle has been constructed on the Brazeau River in Alberta as part of the 305,500-kw. Big Bend hydro development.

Perhaps the most promising application of the pumping-generating principle is its use in conjunction with nuclear power stations. Nuclear units, in common with the larger conventional thermal units, can be used most efficiently under conditions of continuous operation. Off-peak nuclear power can be used to operate pump-turbine units and the hydro-electric power derived from operating the units as generators is available for use during periods of peak demand.

### Subsection 2.—Utilization of Electric Energy

In 1970, Canada's generating facilities produced 203,714,000,000 kilowatt hours of electric energy, after allowing for the energy used in the power stations themselves. Of this total, 76.7 p.c. was produced in hydro-electric stations and the remainder in thermal stations. Electric energy exported to the United States exceeded imports by 2,403,000,000 kwh. during 1970, so that the total energy available in Canada amounted to 201,311,000,000 kwh.

Industry uses approximately 58 p.c. of the total electric energy made available in Canada; residential and farm use accounts for 20 p.c. and commercial use for 13 p.c. The remaining 9 p.c. is listed under "losses and unaccounted for". Because many power producers do not distinguish in their records between residential and farm customers, the amount of energy used is combined. Energy used for street lighting represents less than 1 p.c. of total energy made available and is included in the "commercial category".

About 22 p.c. of the total energy made available is used in the mineral industry with approximately three quarters of this amount being consumed by the smelting and refining processes. The pulp and paper industry accounts for 15 p.c. and all other industries combined for an additional 21 p.c. Of the latter, the chemical industry and the primary iron and steel industry consume almost one half.

The availability of large water-power resources in those regions in which the more important mineral deposits have been found has greatly facilitated mining development. Recent examples are the nickel mining and refining complex at Thompson, Man., which uses hydro-electric power generated in the Kelsey plant on the Nelson River, and the iron ore mining operations in Labrador, supplied by the Twin Falls plant on the Unknown River. Metal mining, a very important division of the Canadian mining industry, is carried on mainly in two physiographic regions—the Western Cordillera and the Canadian Shield. In the Western Cordillera, the mountainous topography and the relatively high amounts of precipitation favour the development of water power. In the Canadian Shield, which is a Precambrian formation stretching in a wide sweep around Hudson Bay from the Mackenzie River basin to the eastern tip of Labrador, heavy glaciation in recent geological times has formed river systems which are comparatively young and are characterized by large numbers of lakes connected by short river sections, with numerous rapids and falls suitable for the development of hydro-electric power.

Canada has no known deposits of bauxite but the availability of low-cost hydro-electric power has fostered the establishment of a large aluminum industry that produces one eighth of the world's supply of this metal, most of which is exported from Canada. Further evidence of the value of water power to mining operations is provided by the fact that Canada's asbestos industry, which produces about 35 p.c. of the world's supply of asbestos fibre, obtains the major part of its power supply from hydro-electric sources.

Canada's pulp and paper industry is one of the world's great industrial enterprises. Total mill capacity for the production of newsprint paper is considerably greater than that of any other country in the world, and in total production of wood pulp Canada is second only to the United States. The fact that about 90 p.c. of the manufactured newsprint is

exported gives some indication of the importance of the industry to the Canadian economy. By far the larger portion of the energy used in the pulp and paper industry is derived from water power.

The traditional reliance on hydro-electric generation by the mining and pulp and paper industries is more an indication of the abundance of hydro sites within economically accessible distances of demand areas rather than a definite preference for hydro as opposed to thermal generation. As the number of available hydro sites continues to decline, both industries are beginning to realize that their energy requirements can be met equally as well by thermal generation.

### Subsection 3.—Hydro-Electric Generation

As discussed in Subsection 1, hydro-electric generation will play an increasingly lesser, yet significant role in Canada's future electrical development. By the beginning of 1971, the hydro portion of the country's total generating capacity had fallen to 66 p.c. from over 90 p.c. twenty years earlier.

In view of the vast water resources existing throughout Canada, there would appear to be a myriad of undeveloped sites that could conceivably be potential sources of hydro-electric power. It is not sufficient, however, to assume that all of these possibilities represent economically viable sources of electric power. In fact, only a very minor portion of the sites with a theoretical power potential can actually be developed competitively. Before a site can be termed a veritable source of potential power, a detailed analysis of such factors as costs, geography, geology and ecology must be performed. And until a study is completed on a national scale, estimates of Canada's undeveloped water power resources may tend to be misleading; a recent estimate places them in excess of 60,000,000 kw.

Figures of water-power resources already developed are given in Table 1 and are based on the manufacturer's rate in kilowatts as shown on the generator name-plate, or derived from the rating where it is indicated in kilovolt-amperes. The maximum economic installation at a power site can be determined only by careful consideration of all the conditions and circumstances pertinent to its individual development. It is usual practice to install units having a combined capacity in excess of the available continuous power at Q50 (flow available 50 p.c. of the time), and frequently in excess of the power available at Qm (arithmetic mean flow). There are a number of reasons for this. The excess capacity may be installed for use at peak-load periods, to take advantage of periods of high flow, or to facilitate plant or system maintenance. In some instances, storage dams have been built subsequent to initial development to smooth out fluctuations in river flows. In other cases, deficiencies in power output during periods of low flow have been offset by auxiliary power supplied from thermal plants, or by interconnection with other plants which operate under different load conditions or are located on rivers with different flow characteristics.

Thus, the extent to which the installed capacity exceeds the available continuous power at the various rates of flow is dependent upon the factors that govern the system of plant operation, and varies widely in different areas of the country.

**Provincial and Territorial Distribution.**—The provincial and territorial distribution of installed hydro-electric generating capacity, given in Table 1, reveals that substantial amounts of water power have been developed in all provinces except Prince Edward Island, where water-power resources are meagre. As natural-resource development proceeds, the fortunate incidence of water power in proximity to mineral, forest and other resources becomes increasingly apparent. The existence of large amounts of potential hydro power on northern rivers may well prove to be a factor of prime importance in the eventual realization of the natural wealth of the Canadian North.

The water-power resources of *Newfoundland* are considered to be of very substantial magnitude. On the Island, although the length of the rivers is generally not great, topography and run-off are favourable for hydro-electric power development. Of the substantial



capacity installed, a very large portion serves the pulp and paper industry. In Labrador, the Churchill River and its tributaries, now under development, constitute one of the largest potential sources of water power in Canada.

In *Prince Edward Island* there are no large streams and water-power plants are limited in size to those used to operate small mills. The water-power resources of *Nova Scotia* and *New Brunswick*, although small in comparison with those of other provinces, are a valuable source of energy and make a substantial contribution to the economies of the two provinces. Numerous rivers in both provinces provide moderate-size power sites either within economic transmission distance of the principal cities and towns or advantageously situated for use in development of the timber and mineral resources. These provinces have, however, turned to coal-fired thermal generation and are increasingly utilizing oil.

*Quebec* is the richest of all the provinces in water-power resources, possessing about 40 p.c. of the total for Canada. Quebec also leads in developed water power, its installation of 13,279,000 kw. in 1970 representing about 47 p.c. of the national total. Notable developments are the Quebec Hydro-Electric Commission's 1,574,260-kw. Beauharnois development on the St. Lawrence River, the Commission's 1,015,200-kw. Manic 2 development on the Manicouagan River, its Bersimis I development on the Bersimis River having an installed capacity of 912,000 kw., and its 1,292,000-kw. Manic 5 development, of which five units (807,500 kw.) were in service by the beginning of 1971. The Aluminum Company of Canada Limited owns the 742,500-kw. Chute des Passes plant on the Péribonca River. The Manic 5 development is part of a major power project which represents a significant advance in the development of Quebec's hydro-electric resources. This project, involving the harnessing of the headwaters of the Manicouagan and Outardes Rivers, will permit the eventual installation of some 5,540,000 kw. on the two rivers; a total installation of 3,749,000 kw. was in service at the beginning of 1971. Power production in the province is facilitated by the regulation of stream-flow by the provincial Department of Natural Resources through the storage dams which it owns and operates. Some of the responsibility for regulation rests with the Quebec Hydro-Electric Commission.

Almost all of the sizable water-power potential in *Ontario* within easy reach of demand centres has been developed and planners are looking to the more remote sites as new sources of supply. Improvements in long-distance transmission techniques may bring some of these sites within the economic range. Most of the hydro-electric power produced in the province comes from the generators of The Hydro-Electric Power Commission of Ontario, Canada's largest power producing and distributing organization. Ontario's largest hydro-electric generating station is located on the Niagara River at Queenston, where the Sir Adam Beck-Niagara Generating Stations Nos. 1 and 2 and the associated pumping-generating station have a combined generating capacity of 1,814,950 kw. In addition to the power generated in its own plants, the Commission purchased electric power generated outside the province to the extent of 3 p.c. of its total requirements in 1970.

Of the three Prairie Provinces, *Manitoba*, with immense hydro-electric capabilities on the Winnipeg, Churchill, Nelson and Saskatchewan Rivers, is the most generously endowed with water power resources. Until recently, hydro-electric generating stations on the Winnipeg River supplied most of the power requirements of southern Manitoba. Manitoba Hydro's high-voltage, long-distance transmission lines, however, will carry ever-increasing amounts of power south from hydro-electric stations on northern rivers to help meet the province's constantly growing power demands. Of particular interest is the initial development of the Nelson River System. The Kettle Rapids site is being developed toward an ultimate capacity of 1,224,000 kw. and power will be transmitted over a 556-mile high-voltage direct current transmission system at  $\pm 450$  kilovolts to a receiving station near Winnipeg. Large water power resources exist in the central and northern parts of *Saskatchewan*, principally on the Churchill, Fond du Lac, and Saskatchewan Rivers. Power from Squaw Rapids on the Saskatchewan River is fed into the transmission network of the provincially owned Saskatchewan Power Corporation, which serves the more settled areas of the province. Before the completion of this development in 1963, these areas had been

served by electric power from thermal plants fuelled by coal, oil or natural gas, the hydro-electric power generated in the province being used almost exclusively for mining purposes in northern areas. In *Alberta*, most of the principal hydro-electric developments are located on the Bow River and its tributaries and, from these developments, Calgary Power Ltd. serves most of the southern part of the province. The Big Bend hydro-electric development on the Brazeau River in the headwaters of the North Saskatchewan River, completed in 1967, augmented the energy from the Bow River plants and another development on that river at Bighorn will add 108,000 kw. in 1972. Substantial water power resources are located in the northern regions and, although these are somewhat remote from present centres of population, the advent of extra-high-voltage transmission has enhanced the prospect of their development.

*British Columbia* has many mountain streams that offer abundant opportunity for the development of hydro-electric power. In terms of installed hydro capacity, the province is exceeded only by Ontario and Quebec. Notable for the magnitude of their power potential are such rivers as the Columbia, the Fraser, the Peace and the Stikine. Until 1968, hydro developments on smaller rivers in the southern areas satisfied the major load requirements of the province but in that year the immense power resources of the Peace River began to supplement the energy supply. Development of the hydro potential of the Canadian portion of the Columbia River is under way, utilizing the water stored behind three huge storage reservoirs, two of which have been completed and the third scheduled for 1972. The foremost producer and distributor of electric power in British Columbia is the provincially owned British Columbia Hydro and Power Authority.

Power from present developments in the *Yukon Territory* and the *Northwest Territories* is used largely to satisfy the needs of local mines and adjacent settlements. The Northern Canada Power Commission is authorized to construct and manage public utility plants in both Territories. A preliminary evaluation of the hydro-electric potential has been made for most of the major rivers in the Yukon Territory and in the central portion of the Mackenzie District of the Northwest Territories. The results of these studies indicate that a very substantial water-power potential exists; the Yukon River and its tributaries alone represent some of the largest undeveloped hydro-electric resources in North America.

#### Subsection 4.—Thermal-Electric Generation

The incidence of immense water-power resources in Canada and the brisk pace of their development has tended to overshadow the very considerable contribution being made by thermal energy in the nation's power economy. At the end of 1970, the total installed thermal capacity in Canada was 14,325,000 kw., representing about 34 p.c. of the total electric generating capacity in the country. The fact that energy produced in thermal plants during the year accounted for only 23 p.c. of the total may be attributed in part to the fact that a considerable amount of the capacity installed is operated for peak-load duty, with hydro-electric capacity providing base-load generation. This pattern will change with the introduction of additional nuclear-fuelled thermal generation plants which can be operated economically at high capacity factors for base-load purposes.

**Conventional Thermal Power.**—Over 90 p.c. of all thermal power generating equipment in Canada is driven by steam turbines. The magnitude of loads being carried by steam plants combined with the economies of scale has led to the installation of steam units with capacities as high as 500,000 kw. where systems are large enough to accommodate them. The remainder of the load is carried by gas turbine and internal combustion equipment. The flexibility of internal combustion engines makes this type of equipment particularly suitable for meeting power loads in smaller centres, especially in the more isolated areas.

Table 1, p. 716, shows that thermal generation is predominant in Prince Edward Island and Nova Scotia. Also, by the end of 1970, the Northwest Territories and Ontario had joined Alberta, Saskatchewan and New Brunswick as provinces and territories having

greater than one half of their total capacity thermal-electric. It is expected that thermal generation will become increasingly predominant in Ontario.

Thermal capacity in Newfoundland had, until recently, consisted of small internal combustion stations serving more isolated communities, together with a few medium-sized gas turbine and steam turbine units in larger centres. However, during 1970, the province's first major thermal station, Holyrood, went into service with the commissioning of the first of two 150,000-kw. steam units. The plant, which was scheduled for completion in 1971, is fuelled by residual oil from a nearby refinery. Although coal is still the most important fossil fuel for thermal plants in Nova Scotia, oil is rapidly becoming the preferred choice for thermal-power generation in all of the Atlantic Provinces.

The abundance of Quebec's water-power wealth, much of it in reasonable proximity to existing demand areas, has limited the application of thermal power to specific local use. And now, with the added impetus of new developments in transmission technology allowing the economic transportation of large blocks of power over long distances, it seems likely that Quebec will continue to concentrate on hydro-electric power and develop some of the more remote regions such as the rivers flowing into James Bay. Nevertheless, Quebec is beginning to look toward thermal power since it will serve not only to help guarantee an adequate power supply in the face of increasingly heavy demands but also to render the almost exclusively hydro-electric base more flexible through integrated operation. Quebec's largest thermal plant, the Tracy station near Sorel, has an installed capacity of 600,000 kw.

Ontario has more thermal capacity than any other province in Canada; capacity installed at the beginning of 1971 was 6,819,000 kw., which represents about 47 p.c. of the national total. Ontario Hydro's Lakeview station at Toronto is Canada's largest thermal generating station having an installed capacity of 2,430,000 kw. The Lambton station near Sarnia reached its designed capacity of 2,000,000 kw. in 1970. Two more conventional thermal stations are planned with final capacities of 4,000,000 kw. (at Nanticoke, near Port Dover) and 2,295,000 kw. (at Lennox, west of Kingston). With the exception of Lennox, which will use oil fuel, Ontario's fossil-fuelled thermal plants are designed to be coal-fired.

Manitoba supplements its predominantly hydro-based power supply with a substantial amount of thermal capacity but current emphasis is on development of water-power resources. Saskatchewan, until recently, relied on thermal capacity to satisfy the needs of the more settled areas and hydro-electric power generated in the province was used almost exclusively for mining purposes in the northern areas. In the past few years, however, development of storage on the Saskatchewan River has made hydro-electric power from Squaw Rapids and Coteau Creek available in the southern part of the province. Thermal generation is providing the next stage of expansion with extensions under way at Boundary Dam (Estevan) and Queen Elizabeth (Saskatoon) stations. The availability of vast fuel resources accounts for the emphasis on thermal power generation in Alberta; the province's largest thermal plants are the 405,000-kw. gas turbine and steam station at Edmonton and the 582,000-kw. Wabamun steam station. Planned thermal expansion includes the 140,000-kw. H.R. Milner station (near Grande Cache), a 300,000-kw. addition to the Sundance station (near Wabamun), and a 165,000-kw. addition at the Clover Bar plant. Similar-sized units were commissioned at Sundance and Clover Bar during 1970.

About two thirds of British Columbia's thermal generating capacity is installed in three plants located in the Vancouver area. The capacity of the largest of these plants, the Burrard generating station, is 750,000 kw. Only minor thermal additions were made in the province during the year and no major additions are contemplated in the near future.

Until 1965, most of the power requirements of the Northwest Territories were satisfied from thermal sources but the commissioning of the Twin Gorges hydro station on the Taltson River in that year altered the balance in favour of hydro. However, new additions in 1970 made thermal facilities once again the dominant source of power. In the Yukon Territory, hydro is the larger contributor. Virtually all of the thermal-electric energy in the Territories has been generated by small diesel units. Present indications are that future growth will continue to concentrate on diesel generation but the magnitude of the units installed will be substantially greater.



**Nuclear Thermal Power.**—Commercial electric power generated from the heat of nuclear reaction became a reality in Canada in 1962 when the 20,000-kilowatt electrical (kwe.) Nuclear Power Demonstration station at Rolphton, Ont., fed power for the first time into a distribution system in Ontario. The NPD station is the forerunner in a series of large nuclear stations that will shoulder more and more of Canada's rapidly growing power loads.

Research into reactor design and the application of nuclear energy in the electric power field are among the more important responsibilities of Atomic Energy of Canada Limited, a Crown company incorporated in 1952 (see also pp. 454-459). AECL has concentrated its efforts on the development of the CANDU reactor, which uses natural uranium as a fuel and heavy water as the moderator. By using heavy water as the moderator, a high energy yield can be obtained from natural uranium and, since natural uranium is a low-cost nuclear fuel, the cost of fuel is a minor component in the cost of producing power. Natural uranium has the added attraction of being available in commercial quantities in Canada.

The NPD station has been used extensively to demonstrate the ability of the system to operate at a high capacity factor and to determine the nature and predictability of outages. Fuel changes while the system is in operation have become routine and a considerable amount of research into the sources of heavy water losses has been carried out. As a result of this research, losses have been cut down and the NPD station is demonstrating that a very acceptable heavy-water loss rate is attainable. The station was modified in 1968 to a boiling heavy-water mode of operation to provide additional demonstration capabilities.

At Douglas Point on the shore of Lake Huron, the country's first full-scale nuclear power station went into commercial production in 1967. The station, built with the co-operation of Ontario Hydro, houses a 200,000-kwe. CANDU reactor. Experience gained in the design and operation of this reactor has encouraged the development of even larger units and construction of the four-unit, 2,160,000-kwe. Pickering nuclear station is well advanced near Toronto, with in-service dates for the units scheduled for 1971 to 1974. Construction of the Bruce nuclear station for Ontario Hydro is under way with four 800,000-kwe. units planned for installation during 1975 to 1978.

A further step in the development of the CANDU reactor is the use of boiling light water instead of pressurized heavy water as the coolant. Quebec's Gentilly nuclear station near Trois-Rivières utilizes boiling light water in its CANDU reactor. This station came into service in 1971 with 250,000 kwe. of nuclear-electric capacity.

### Subsection 5.—Electric Power Transmission

The nature of the loads handled by the small, widely scattered generating systems in the early days of the electric power industry in Canada did not warrant the expense of interconnecting power systems. However, as the demand for dependable electric power increased and improved techniques reduced power transmission costs, the benefits of integrating power systems to achieve reliability of service and flexibility of operation were re-appraised. Today, most of Canada's generating stations are components of large, integrated and often interconnected power systems operated by power utilities and companies in the various provinces.

Constant research in the field of power transmission has developed techniques that enable power producers to utilize hydro-electric sites previously considered beyond economic transmission distances. Most noticeable, perhaps, is the progressive stepping-up of transmission-line voltages. In Canada, there are a number of transmission lines designed for operation at 500,000 volts and 735,000 volts. A 574-mile, 500,000-volt line is in service to carry power from the Peace River to the lower mainland of British Columbia. In Ontario, a 435-mile, 500,000-volt line carries power from hydro-electric plants in the James Bay watershed to Toronto. In 1965, Hydro-Quebec achieved world leadership when power was carried for the first time at 735,000 volts over the 375-mile transmission line between Quebec's Manicouagan-Outardes hydro complex and the cities of Quebec and Montreal.

By the end of 1970, 1,022 miles of the initial program for 1,228 miles of the 735,000-volt line had been completed and work was proceeding on three additional 735,000-volt circuits to transmit energy from the Churchill Falls complex commencing in 1972.

Most power is transmitted with alternating current but three applications of high voltage direct current (HVDC) have been found in Canada. In service in British Columbia is a 260,000-volt HVDC link from the mainland to Vancouver Island. It has a capacity of 312,000 kw. and includes 21 miles of undersea cable; it is a monopolar system using the ground as the return path for current. A second HVDC system is expected to be placed in service in 1972 over two 555-mile lines from the Kettle generation station on the Nelson River to Winnipeg. The initial capacity is 810,000 kw. and the planned ultimate rating is 3,200,000 kw. Another application is designed to provide a non-synchronous tie between the systems of New Brunswick and Quebec; this is a 320,000-kw. back-to-back HVDC system located at Eel River, N.B., which will be placed in service in 1972 and will employ solid state thyristor valves in place of the mercury arc valves used for the earlier HVDC systems.

Interconnections of from 66,000 to 230,000 volts exist between British Columbia and Alberta; Saskatchewan, Manitoba, Ontario and portions of the Quebec system are interconnected and, through the Ontario Hydro system, are linked with the northeastern United States systems; and Quebec, New Brunswick and Nova Scotia systems are interconnected. The first inter-regional tie connecting Maritime regions of Canada and the United States became a reality during 1970 with the completion of a 345,000-volt link between the New Brunswick and Maine systems. British Columbia has an international tie with the Pacific Northwest (500,000 volts) and a 230,000-volt link between Manitoba and the United States was completed during 1970.

The search for economies in transmission systems has led to changes not only in materials used but also in tower erection and cable-stringing methods. Guyed V-shaped and Y-shaped transmission towers are being used increasingly in place of self-supporting towers where the terrain is suitable, and erection costs are being reduced by the use of helicopters to transport tower sections to the site for tower assembly. The use of helicopters for spraying in brush control on the right-of-way and for line inspection and maintenance is widespread.

In addition to considering the economics of transmission development, a concentrated effort is under way to provide systems that are acceptable from an aesthetic viewpoint. For example, investigations into the design of more attractive towers have led to the development of new tapered aluminum poles which will ultimately replace their unsightly wooden counterparts. Discretion is also being exercised in the selection of routes for proposed lines to ensure only minimal disturbance of the natural landscape.

### **Subsection 6.—Research in the Field of Electricity**

Developing solutions to electric power problems, especially to those of urgent significance to Canada, requires competent and well-chosen research activity. Although most research work in this area in Canada is performed by the major utilities, their ultimate contribution is not limited to their own individual needs but is of benefit to the entire electrical utility industry.

Ontario Hydro has a long history of research activity at its Dobson Laboratories, which were first established in 1912. Since then, the Commission's research facilities have grown appreciably and today its Research and Development Division employs more than 300 people and makes use of highly sophisticated equipment. The Division tackles numerous problems, not only those related to operating a large utility but also those involving the design and development of new ideas and equipment. In such endeavours, close liaison between industry and the universities is maintained. Notable achievements have been made by the Division in recent years with respect to the improvement of transmission-line appearance, the economic utilization of electric heating, the elimination of air pollution and the improvement of system reliability.

More recently, Hydro-Quebec has embarked upon the establishment of an ambitious research centre—Hydro-Quebec Institute of Research (IREQ)—which will have the function of providing a sound technological basis for Quebec's electrical utility expansion and at the same time will provide research and testing facilities for other utilities and for electrical equipment manufacturers throughout Canada. Recognizing this national role, the Government of Canada has provided substantial financial support to the Institute. An important feature of the Institute is that it has been designed to concentrate on areas where other North American research programs are inadequate or where its own facilities are superior. At the end of 1970, the first of three buildings housing general laboratories, staff offices, computers, workshops, a library and an auditorium, had been completed. Two other buildings, to be completed by 1972, will contain high-voltage and high-power laboratories.

The future will show that Canada possesses substantial capability in facilities and skilled personnel to meet the research needs of the electrical utilities and the associated manufacturing industry. There remains a challenging task for the entire industry to ensure that skills and equipment are directed in the most effective and timely way toward the solution of the most urgent and rewarding problems.

## Section 2.—Progress in Construction of Generating Facilities, 1970

The addition of 3,081,000 kw. to electrical generating capacity in 1970 raised the total installed capacity to 42,629,000 kw., an increase of 7.8 p.c. over 1969. Although this increase in the country's over-all generating capacity was significant, the total addition was nearly 20 p.c. less than the 3,840,000 kw. added in 1969.

Of the 1970 addition, thermal-electric capacity accounted for 59 p.c. or 1,810,000 kw. and hydro generation for the remaining 1,271,000 kw., so that at the end of the year total installed capacity was 66 p.c. hydro-electric and 34 p.c. thermal.

The trend to larger-sized units continued in 1970, especially with respect to thermal-electric capacity where 95 p.c. of the increase was made up of units of 150,000 kw. or greater; only 63 p.c. of the total hydro-electric addition came from units of 150,000 kw. or larger. Increases in the size of hydro-electric units cannot be expected to keep pace with thermal units since their size is influenced by head and flow as well as by consideration of system size.

**Newfoundland.**—The power industry in Newfoundland (including Labrador) recorded a remarkable 30-p.c. increase in installed generating capacity and extended substantially its transmission network. The unusually high increase in capacity resulted from the completion of two 76,500-kw. hydro units at Bay d'Espoir and the installation of a 150,000-kw. steam-generating unit at Holyrood. Although this brought to a close the present development program at Bay d'Espoir, another 150,000-kw. unit is expected to be added to the Holyrood plant in 1971. Further generation expansion on the Island of Newfoundland will probably take place on the western side but, in the light of the substantial additions currently being made, this expansion may not be required before 1976. The extension of the province's transmission system included the completion of a second 230-kv. circuit from Holyrood to St. John's. A second 230-kv. circuit to the west coast of the Island is planned for early construction. In addition, more than 150 circuit miles of 69-kv. line were built, providing connection to areas previously served only by isolated diesel generation. As the system is expanded, the diesel units will be phased out gradually.

In Labrador, work on the massive Churchill Falls development continued on schedule; by 1972 this development will begin to feed power to Quebec over the 735-kv. transmission system and by 1976 all 11 475,000-kw. generators will be in service, providing a total capacity of 5,225,000 kw. The excavation of the underground powerhouse was completed during 1970 and the installation of the turbines and generating equipment started about mid-year. The first two units will be in operation for test purposes during 1971.



**Prince Edward Island.**—Although no additions to installed capacity were made during 1970 in Prince Edward Island, a 14,000-kw. gas turbine under construction at Borden will provide an 18-p.c. increase in the province's generating capacity by the end of 1971. Load growth during 1970 produced a 10-p.c. increase in peak demand.

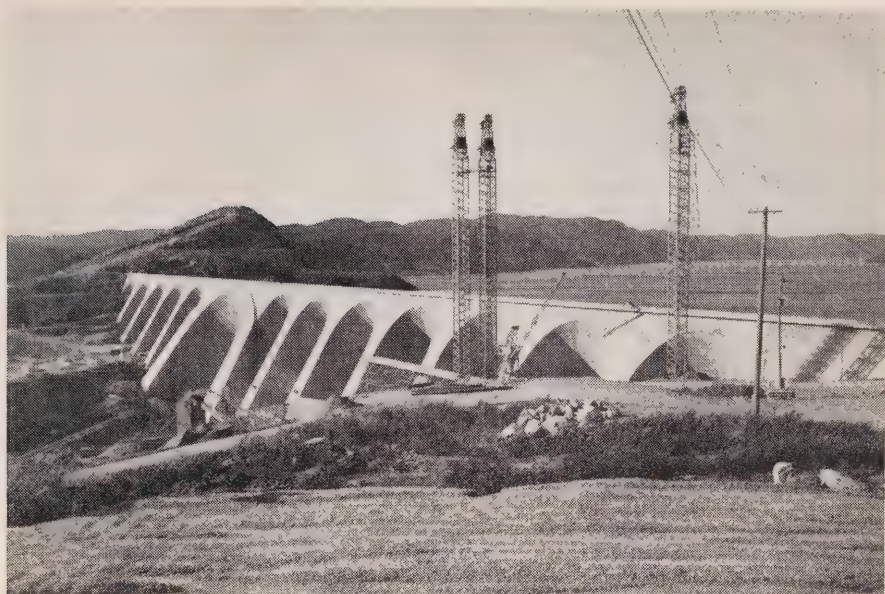
**Nova Scotia.**—Following a major increase in its thermal generating capacity in 1969, the Nova Scotia Power Commission made no new additions during 1970 but plans to bring a 25,000-kw. gas-turbine plant into service at Tusket in 1971 and to add another 150,000-kw. unit to its Point Tupper station in 1973. When completed, the Point Tupper station will be the largest in the province. Current expansion plans of the Nova Scotia Light and Power Company centre on the extension of the Tufts Cove station where a new 105,000-kw. unit is expected to be in service by mid-1972, bringing the station's capacity to 205,000 kw. During 1970, additions of 152 circuit miles were made to 69-kv., 138-kv. and 230-kv. systems.

**New Brunswick.**—No additions were made to generating capacity in New Brunswick in 1970, following the substantial extensions made in 1968 and 1969 at the Mactaquac and Dalhousie stations. A fourth 100,000-kw. unit for Mactaquac is scheduled for service in 1972 and two other units of the same size will follow some time later. For the most part, efforts during 1970 were concentrated on transmission development. A significant achievement was the New Brunswick Electric Power Commission's 345-kv. transmission interconnection with utilities in New England, providing the first major inter-regional tie between the Maritime regions of Canada and the United States. This interchange implemented a 25-year pact agreed upon by Canadian officials and representatives of New England power companies at Fredericton in August 1969. Under construction and planned for service in 1972 is a HVDC back-to-back asynchronous tie with 320,000-kw. capacity between New Brunswick and Quebec. This is being installed at Eel River, N.B., and will initially permit the purchase of substantial quantities of Churchill Falls power in the period up to 1976.

**Quebec.**—A total 1970 net increase of over 808,000 kw. retained for Quebec its position as the largest among the provinces in installed generating capacity. As at Dec. 31, 1970, combined hydro and thermal capacity in the province was above 14,000,000 kw. and of that total, almost 95 p.c. was hydro-electric.

The only significant addition during 1970 was the completion of the first five 161,500-kw. Manic 5 units, which added 807,500 kw. of new capacity—over 60 p.c. of Canada's hydro-electric additions for the year. The station's three remaining units are scheduled for service in 1971. Unlike many other provinces which have come to rely on thermal generation to meet their future needs, Quebec expansion plans still concentrate heavily on hydro generation. In fact, the only notable thermal station under way at present is the 250,000-kw. nuclear-fuelled Gentilly development. This unit reached criticality during 1970 and will be on line sometime in 1971. Between 1973 and 1978, Hydro-Quebec plans to install 1,212,000 kw. of additional hydro-electric capacity. The Manic 3 development will account for 1,176,000 kw. and the remainder will be supplied by an addition to the Rapide des Îles plant. In the 1972-76 period, most of the load growth will be met by purchases from the Churchill Falls complex. Extensive investigation is continuing into the engineering and economic possibilities of developing the hydro-electric potential of several rivers flowing into James Bay from northwestern Quebec. Potential exceeding 10,000,000 kw. can be developed and a decision to start in 1971 would probably produce first power in 1978-80. A pumped storage facility at Lac St. Joachims, near Quebec City, is also being given consideration.

Considerable work was carried out during 1970 on extending the transmission network throughout the province. Development of Hydro-Quebec's 735-kv. system was continued with the completion of the third of four sections connecting the Manic-Outardes complex with Montreal; by year-end, 1,022 miles of the initial program for 1,228 miles had been completed. Construction also proceeded on three additional 735-kv. circuits which will transmit energy from Churchill Falls and form a part of the integrated system. Hydro-



*The Daniel Johnson Dam at Quebec Hydro's Manic 5 development will eventually impound a vast reservoir covering 750 sq. miles. The power station, with its eight 161,500-kw. units, is now in service. Manic 5 is the largest part of the Manicouagan-Outardes complex in northeastern Quebec which, on completion, will consist of seven new power centres with a total installed capacity of 5,540,000 kw.*

Quebec will take delivery of this energy at the Labrador border about 152 miles north of Sept Îles. Three lines will extend from the delivery point, two going to Manicouagan and the third connecting with Micoua. Because of this additional supply from Churchill Falls, preparatory work is under way on expanding the 735-kv. system from Manic-Outardes to the various load centres. In addition to the 735-kv. transmission achievements, noticeable additions were made to the 315-kv., 230-kv., 120-kv. and 69-kv. systems during 1970.

**Ontario.**—Again in 1970, Ontario made a substantial increase in its over-all generating capacity. Thermal-electric additions continued to dominate the province's growth program, accounting for over 80 p.c. of the year's increase. As a result, the total installed thermal capacity in Ontario, for the first time, exceeds the total installed hydro capacity. The highlight of the year was the completion of the final two 500,000-kw. steam units at Lambton. This is now the second largest thermal station in Canada, exceeded only by Ontario Hydro's Lakeview station. In addition, three of the six 7,500-kw. gas-turbine auxiliary units at Pickering were brought into service with the remaining three scheduled for service in 1971. The commissioning of the 203,000-kw. Wells generating station on the Mississagi River was the only significant hydro-electric addition during 1970.

Continuing the present trend, expansion over the 1971-78 period will concentrate almost exclusively on thermal-electric generation. Of the 11,950,000 kw. of capacity to be added, only 228,000 kw. will be hydro-electric. Most of new thermal generation will be supplied by four plants under construction in 1970: the 4,000,000-kw. Nanticoke coal-fired plant located near Port Dover, the 2,295,000-kw. Lennox oil-fired development being built west of Kingston, and two nuclear-fuelled plants—the 2,160,000-kw. Pickering plant near Toronto and the 3,200,000-kw. Bruce development near Kincardine. Each of these stations will have units in the 500,000-kw.-to-800,000-kw. size range. The 228,000-kw.

Lower Notch station being constructed on the Montreal River is the only hydro-electric development planned for the foreseeable future. It is expected that this station will be in service by late 1971.

The nearly 1,500 circuit miles of transmission line that were added during 1970 included the completion of the last section of the double-circuit 230-kv. interconnection between the East and West Systems of Ontario Hydro.

**Manitoba.**—The first phase of the massive 1,224,000-kw. Kettle hydro-electric station on the Nelson River went into service in 1970 with the completion of the first 102,000-kw. unit. The unit was connected to the system by AC transmission in December. Completion of the  $\pm 450$ -kv. HVDC transmission system and three more generators at Kettle are scheduled for 1971 and subsequent units will be brought into service between 1972 and 1976 at the rate of two a year. The only additional expansion in the province under way in 1970 was the 33,750,000-kw. addition to the Kelsey station. This work should be finished by 1972. An interim licence, permitting control over the outflow of Lake Winnipeg by 1974, was granted to Manitoba Hydro during the year. This will allow a partial solution to the water storage requirement for economical expansion of power generation on the Nelson River system. Means for the diversion of water from the Churchill River into the Nelson system and for additional storage were under study.

A 230-kv. transmission interconnection with the United States was completed in mid-1970 to permit power sales during the summer months. Reinforcement of 230-kv. transmission to Ontario and Saskatchewan is planned for 1972 to handle projected power sales to these provinces.

**Saskatchewan.**—A major 150,000-kw. addition to the Boundary Dam generating plant raised that station's capacity to 432,000 kw., the largest in the province. A further 150,000-kw. unit is expected to be brought into service in 1973. Other generation plans include the addition of a 100,000-kw. unit to the 141,000-kw. Queen Elizabeth station and the purchase of 100,000 kw. from Manitoba in 1972. Later expansion will involve considering the alternatives of lignite-coal-burning thermal plants, gas turbines and hydro developments. The Saskatchewan Power Corporation disposed of its 25,000-kw. Moose Jaw thermal station during 1970; it had not been used since 1968.

An extensive program of transmission expansion undertaken during 1970 resulted in the addition of 168 circuit miles of 72-kv. line and 28 circuit miles of 138-kv. line. Also, arrangements were concluded with Manitoba for a second 230-kv. inter-system connection; completion of the transmission line, which will extend from Roblin in Manitoba to Yorkton in Saskatchewan, is predicted for 1972.

**Alberta.**—The commissioning of the first units at two new steam-turbine generating plants, a 300,000-kw. unit at Calgary Power's Sundance station and a 165,000-kw. unit at the Edmonton Power's Clover Bar station, assisted in raising Alberta's installed thermal capacity by over 30 p.c. in 1970. Other thermal-electric increases were made by Northland Utilities and Canadian Utilities but the latter's 30,000-kw. gas-turbine addition at Rainbow Lake was the only substantial item. No new hydro-electric capacity was added in 1970.

Future commitments in the province include Canadian Utilities' 140,000-kw. steam-turbine generator set at the H.R. Milner station near Grande Cache which is scheduled for service in 1972, and second units of 165,000 kw. and 300,000 kw. for Clover Bar (1973) and Sundance (1974), respectively. The only hydro-electric development firmly committed is the 108,000-kw. Bighorn generating station and multi-purpose water-storage project to be completed in 1972. However, the Alberta Government has under study four sites on the Peace and Slave Rivers which may provide future hydro-electric generating capacity for the provincial growth. The capacity available could exceed 2,000,000 kw. and would take advantage of the storage behind the Bennett Dam in British Columbia.

In aggregate, 347 miles of transmission line were added to the province's over-all network during 1970. Canadian Utilities added 113 circuit miles of 72-kv. and 144-kv.





*The Kettle Rapids power project nearing completion on the Nelson River in Manitoba. The first four 102,000-kw. generators of this massive development went into service in 1970 and 1971 and two additional units will be added each year from 1972 to 1976.*

George Hunter

*Churchill Falls powerhouse under construction in solid rock almost 1,000 feet below the surface. Diverted water from a man-made reservoir more than one third the area of Lake Ontario will funnel down eleven inclined penstocks to this huge powerhouse, through eleven massive turbines and out again to the lower Churchill River.*

Churchill Falls (Labrador) Corporation Ltd.





lines and Northland Utilities extended its 144-kv. system by 95 circuit miles. In view of the increased load that will result from further expansion of Lake Wabamun generation, Calgary Power plans to augment its 240-kv. transmission grid in the Wabamun-Edmonton-Calgary corridor in the near future.

**British Columbia.**—Only minor additions were made to generating capacity in British Columbia in 1970 but three more 227,000-kw. units will be added to the Portage Mountain development in 1971-72 and a further 200,000-kw. addition will result from the redevelopment of the Jordan River and Whatshan plants. An extensive study of provincial power requirements to 1985 is under way by the B.C. Energy Board in co-operation with B.C. Hydro and provincial government departments. Transmission expansion includes the final stages of the second 500-kv. line between Portage Mountain and Vancouver, extension of the 230-kv. East Kootenay transmission line to interconnect with the United States, and reinforcement in North Vancouver Island with 138/230-kv. circuits. Construction of the Columbia River storage facilities is continuing, the main Canadian effort at Mica Creek being scheduled for operation in early 1973.

**Yukon Territory.**—Additions to generating facilities during 1970 totalled 7,410 kw.; however, since 1,150 kw. were removed, the net increase amounted to only 6,260 kw. The prime increase was a 5,150-kw. diesel generator placed in service at the Whitehorse station. Other lesser additions were a 500-kw. unit at Clinton Creek, a 600-kw. unit at Watson Lake and a total of 1,160 kw. at various plants throughout the Territory. Installation of a 5,150-kw. unit at Faro commenced in 1970 and was planned for full operation by early 1971. The rapid growth in peak-load demand, which has tripled over the past decade, has necessitated studies of future transmission and generating expansion. It is anticipated that by 1975, generation will be almost double the 1970 level.

**Northwest Territories.**—The Yellowknife and Frobisher Bay generating stations were substantially expanded during 1970 with additions in capacity of 5,150 kw. and 4,420 kw., respectively. Northland Utilities' Hay River plant was also enlarged, bringing the station's over-all installed capacity to 3,350 kw. Immediate expansion plans in the Territories include a new 5,150-kw. internal combustion station at Pine Point and the addition of a similar unit to the Inuvik plant, both of which should be in operation by the end of 1971. Beyond this, expansion is somewhat uncertain, since load growth depends, in large measure, on the success of oil and gas exploration and on the development of mining prospects. Studies suggest that transmission development paralleling the Mackenzie River, with possible interconnection with the Yukon, could, in conjunction with large thermal or hydro developments, best meet the longer-term load growth in this extensive area.

Two significant transmission developments begun during 1970 were scheduled to be completed in 1971—an 80-mile three-phase 69-kv. line connecting Inuvik to Tuktoyaktuk, and a 40-mile single-phase line joining Pine Point with Fort Resolution.

### Section 3.—Power Generating Capability and Load Requirements

Power generating *capability*, as covered in this Section, is the measurement of the available generating resources of all hydro and thermal facilities at the time of the one-hour firm peak load for each reporting company, and is not equal to the *capacity* of such generating facilities. For example, a hydro plant may have a capacity of 100,000 kw. but if, at the time of peak load, the water available for generation is only 80 p.c. of the plant capacity requirements, then its capability is 80,000 kw.

Total generating capability has grown at a rapid rate especially in the past few decades. The annual rate of increase was 6.3 p.c. in the ten-year period 1960-70 and 9.3 p.c. in the four-year period 1966-70. In comparison, the forecast rate of growth for the years 1970-75 is 6.7 p.c.; thermal generating capability is expected to grow at an average rate of 9.5 p.c. a year in the forecast period compared with 13.8 p.c. in the period 1960-70, and hydro-electric capability is expected to increase at 5.2 p.c. a year compared with 4.0 p.c. in the



1960-70 period. This rate of growth in hydro generating capability in the forecast period is attributable to the large power projects under construction in relatively remote areas that will be completed within the next few years.

Among the provinces, Ontario has the largest generating capability, followed by Quebec, British Columbia and Alberta. Quebec has the largest hydro-electric generating capability, followed by Ontario and British Columbia, but Ontario has the largest thermal capability, followed by Alberta and British Columbia. The first full-scale nuclear power station went into commercial operation in Ontario in early 1967.

The largest absolute growth in generating capability for the forecast years is indicated for Ontario at 5,645,000 kw., followed by Newfoundland at 4,076,000 kw., British Columbia at 1,704,000 kw. and Quebec at 1,207,000 kw. Ontario will meet most of its increased generating capability by adding 5,372,000 kw. in thermal capability and 273,000 kw. in hydro capability, the former including 2,014,000 kw. nuclear. Newfoundland will add 3,909,000 kw. hydro and 167,000 kw. thermal, and British Columbia 1,399,000 kw. hydro and 305,000 kw. thermal.

*Firm power peak load* is the measure of the maximum average net kilowatt demand of one-hour duration from all loads, including commercial, residential, farm and industrial consumers as well as the line losses. Such load demand increased at the rate of 7.1 p.c. a year from 1960 to 1970 and 7.4 p.c. a year from 1966 to 1970; peak-load demand is forecast to increase at the average rate of 6.9 p.c. a year in the period 1970-75. As a result of the rapid increase in generating capability and the somewhat slower but steady increase in the peak loads, together with the slight reduction in deliveries of firm power to the United States, the indicated reserve on net capability in the 1960-70 period increased each year except 1961, 1963, 1964 and 1966. The forecast is for increases in each year from 1970 to 1975. The reserve ratio as a percentage of firm power peak load reached a high of 28.2 p.c. in 1960 and fell to 11.6 p.c. in 1966 but is expected to increase to 18.5 p.c. in 1975.

## 2.—Net Generating Capability, by Province, 1970

(Thousand kilowatts)

Province or Territory	Type of Generating Facility				Total
	Hydro-Electric	Thermal-Electric			
		Steam <sup>1</sup>	Internal Combustion	Gas Turbine	
Newfoundland.....	960	180	22	29	1,191
Prince Edward Island.....	—	66	7	—	73
Nova Scotia.....	160	753	3	—	916
New Brunswick.....	580	624	7	—	1,211
Quebec.....	12,464	666	29	36	13,195
Ontario.....	6,541	6,442	8	365	13,356
Manitoba.....	1,232	392	19	24	1,667
Saskatchewan.....	581	786	29	88	1,484
Alberta.....	681	1,754	29	183	2,647
British Columbia.....	4,131	1,024	134	187	5,476
Yukon Territory.....	27	—	21	—	48
Northwest Territories.....	35	1	20	2	58
Canada.....	27,392	12,688	328	914	41,322

<sup>1</sup> Includes 194,000 kw. of nuclear capability in Ontario.

## Section 4.—Electric Power Statistics

Electric power statistics presented in this Section are based on reports of all electrical utilities and all industrial establishments that generate energy regardless of whether or not any is sold and therefore show the total production and distribution of electric energy in Canada. Utilities are defined as companies, commissions, municipalities or individuals whose primary function is to sell most of the electric energy that they have either generated or purchased. Industrial establishments are defined as companies or individuals that generate electricity mainly for use in their own plants.

## 3.—Capacity and Firm Power Peak-Load Requirements, Actual 1951 and 1962-70 and Forecast 1971-75

(Thousand kilowatts)

Item	Actual										Forecast				
	1951	1962	1964	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975		
<b>Net Generating Capability—</b>															
Hydro-electric.....	9,044	18,651	19,493	21,459	22,393	24,161	26,134	27,392	28,870	31,159	32,744	34,172	35,234		
Steam—Conventional.....		4,596	5,422	6,634	7,798	8,877	10,019	12,494	12,764	13,693	15,075	16,046	17,587		
Nuclear.....		—	—	—	167	200	208	194	700	1,850	2,458	2,458	2,458		
Internal combustion.....		251	255	257	264	310	321	328	362	362	362	382	381		
Gas turbine.....		371	384	583	748	875	870	914	1,015	1,015	1,204	1,271	1,490		
<b>Totals, Net Generating Capability.....</b>	<b>10,076</b>	<b>23,869</b>	<b>25,554</b>	<b>28,933</b>	<b>31,370</b>	<b>34,423</b>	<b>37,552</b>	<b>41,322</b>	<b>43,711</b>	<b>48,069</b>	<b>51,843</b>	<b>54,329</b>	<b>57,150</b>		
Receipts of firm power from United States.....	—	4	2	100	180	110	3	93	3	3	3	3	3		
Deliveries of firm power to United States.....	175	121	127	87	95	105	111	170	405	401	389	356	117		
<b>Totals, Net Capability.....</b>	<b>9,901</b>	<b>23,752</b>	<b>25,429</b>	<b>28,946</b>	<b>31,455</b>	<b>34,428</b>	<b>37,444</b>	<b>41,245</b>	<b>43,309</b>	<b>47,671</b>	<b>51,457</b>	<b>53,976</b>	<b>57,036</b>		
<b>Peak Loads—</b>															
Firm power peak loads within Canada.....	8,989	18,972	22,503	25,921	27,812	30,151	32,022	34,447	37,581	40,356	42,916	45,404	48,114		
Indicated shortages.....	321	—	13	—	—	149	70	145	—	—	—	—	—		
<b>Totals, Indicated Peak Loads within Canada.....</b>	<b>9,310</b>	<b>18,972</b>	<b>22,516</b>	<b>25,921</b>	<b>27,812</b>	<b>30,300</b>	<b>32,092</b>	<b>34,592</b>	<b>37,581</b>	<b>40,356</b>	<b>42,916</b>	<b>45,404</b>	<b>48,114</b>		
<b>Indicated Reserve.....</b>	<b>591</b>	<b>4,780</b>	<b>2,913</b>	<b>3,025</b>	<b>3,643</b>	<b>4,128</b>	<b>5,352</b>	<b>6,653</b>	<b>5,728</b>	<b>7,315</b>	<b>8,541</b>	<b>8,572</b>	<b>8,922</b>		

The current series of electric power statistics dates back to 1956. Earlier reports, entitled *Central Electric Stations*, were concerned solely with the electrical utility industry and hence excluded statistics relating to power produced by industrial establishments for their own use, although power sold by such establishments was included. The latest figures available at time of printing (December 1971) for Tables 5-9 were for 1969.

#### 4.—Electric Energy Generated, by Type of Station, 1961-70, and by Province 1969 and 1970

Year and Province or Territory	Generated by—		Total	Year and Province or Territory	Generated by—		Total
	Water Power	Thermal Power			Water Power	Thermal Power	
	'000 kwh.	'000 kwh.	'000 kwh.		'000 kwh.	'000 kwh.	'000 kwh.
1961.....	103,919,241	9,794,077	113,713,318	1966.....	129,834,430	28,300,802	158,135,232
1962.....	104,050,724	13,418,024	117,468,748	1967.....	132,747,303	32,877,520	165,624,823
1963.....	103,531,866	18,406,328	122,238,194	1968.....	134,972,933	41,405,342	176,378,275
1964.....	113,343,948	21,642,799	134,986,747	1969.....	149,246,787	41,855,443	191,102,230
1965.....	117,063,328	27,210,502	144,273,830	1970 <sup>p</sup> .....	156,316,140	47,431,399	203,747,539
<b>1969</b>				<b>1970<sup>p</sup></b>			
Nfld.....	3,979,934	166,984	4,146,918	Nfld.....	4,653,385	167,796	4,821,181
P.E.I.....	—	217,987	217,987	P.E.I.....	—	250,413	250,413
N.S.....	639,730	2,497,917	3,137,647	N.S.....	589,518	2,867,574	3,457,092
N.B.....	2,536,308	2,167,946	4,704,254	N.B.....	2,656,933	2,461,377	5,118,310
Que.....	65,179,624	3,808,295	68,987,919	Que.....	74,448,935	1,337,461	75,786,396
Ont.....	40,121,942	20,708,963	60,830,905	Ont.....	39,092,469	24,711,934	63,834,403
Man.....	7,282,782	96,306	7,379,088	Man.....	7,768,738	665,430	8,434,168
Sask.....	3,122,269	2,399,913	5,522,182	Sask.....	2,610,083	3,378,362	5,988,445
Alta.....	1,376,172	7,501,776	8,877,948	Alta.....	1,216,600	8,737,196	9,953,796
B.C.....	24,661,869	2,189,954	26,851,823	B.C.....	22,871,789	2,741,695	25,613,484
Y.T.....	121,691	35,137	156,828	Y.T.....	180,714	39,884	220,598
N.W.T.....	224,466	64,265	288,731	N.W.T.....	226,976	42,277	269,253
<b>Canada, 1969</b>	<b>149,246,787</b>	<b>41,855,443</b>	<b>191,102,230</b>	<b>Canada, 1970</b>	<b>156,316,140</b>	<b>47,431,399</b>	<b>203,747,539</b>

Of the total generation in 1970 of 203,747,539,000 kwh., 76.7 p.c. was produced from water power and 23.3 p.c. was generated thermally; the proportions differed markedly among provinces as shown in the following statement.

Province	Hydro	Thermal	Province or Territory	Hydro	Thermal
	p.c.	p.c.		p.c.	p.c.
Newfoundland.....	96.5	3.5	Manitoba.....	92.1	7.9
Prince Edward Island.....	—	100.0	Saskatchewan.....	43.6	56.4
Nova Scotia.....	17.1	82.9	Alberta.....	12.2	87.8
New Brunswick.....	51.9	48.1	British Columbia.....	89.3	10.7
Quebec.....	98.2	1.8	Yukon and Northwest Territories.....	83.2	16.8
Ontario.....	61.2	38.8			

Table 5 gives summary figures of power production and distribution classified by province, and Tables 6 and 7 give figures classified by type of production establishment. Total installed capacity in Canada amounted to 39,591,841 kw. in 1969, an increase of 3,683,344 kw. over 1968. Of the 1969 total, 34,324,618 kw. were accounted for by utilities and the remainder by industrial establishments. During 1968 and 1969, total sales to ultimate customers amounted to 116,795,097,000 kwh. and 127,451,741,000 kwh., respectively, of which 99.8 p.c. in both years was sold by utilities.

Sales to power customers excluding sales to industrial establishments with generating facilities made up 49.7 p.c. of the total in 1968 and 49.4 p.c. in 1969, sales to domestic and farm customers were 32.3 p.c. and 31.7 p.c., respectively, and commercial sales 16.8 p.c. and 17.8 p.c., respectively. Exports to the United States in 1969 amounted to 4,319,551,000 kwh., an increase of 331,237,000 kwh. over 1968.



## 5.—Summary Electric Power Statistics, by Province, 1968 and 1969

Year and Province or Territory	Installed Generating Capacity	Energy Made Available in Canada	Exported to U.S.A.	Ultimate Customers <sup>1</sup>	Total Revenue from Ultimate Customers <sup>2</sup>	Electrical Utilities	
						Employees	Salaries and Wages
	kw.	'000 kwh.	'000 kwh.	No.	\$'000	No.	\$'000
<b>1968</b>							
Newfoundland.....	935,663	3,733,187	—	108,579	24,639	991	5,108
Prince Edward Island..	77,391	199,038	—	28,961	5,188	197	1,146
Nova Scotia.....	706,441	3,176,610	—	233,104	45,963	1,787	10,777
New Brunswick.....	1,101,534	3,720,654	388,390	176,988	39,445	1,219	9,197
Quebec.....	11,800,815	60,551,341	36,595	1,815,202	392,834	12,334	108,508
Ontario.....	11,316,466	61,144,823	2,529,276 <sup>3</sup>	2,359,587	498,057	17,616	139,124
Manitoba.....	1,552,154	7,282,093	1	317,777	64,148	2,412	17,221
Saskatchewan.....	1,253,067	4,400,804	—	317,129	67,371	1,634	12,606
Alberta.....	2,049,934	7,753,151	—	459,687	93,235	2,205	15,984
British Columbia.....	5,000,965	24,489,832	1,034,052 <sup>4</sup>	686,165	148,379	3,146	25,827
Yukon Territory.....	50,320	136,606	—	3,617	2,637	89	600
Northwest Territories..	63,747	253,061	—	5,615	4,144	234	1,918
<b>Canada, 1968.....</b>	<b>35,908,497</b>	<b>176,841,200</b>	<b>3,988,314</b>	<b>6,512,411</b>	<b>1,386,040</b>	<b>43,864</b>	<b>348,216</b>
<b>1969</b>							
Newfoundland.....	946,686	4,065,647	—	113,565	30,122	1,410	7,610
Prince Edward Island..	77,391	217,987	—	30,068	5,614	189	1,184
Nova Scotia.....	931,431	3,406,596	—	237,819	50,123	1,811	11,883
New Brunswick.....	1,202,230	3,932,888	484,439	182,559	44,145	1,604	9,650
Quebec.....	13,237,000	64,490,716	29,457	1,868,083	422,449	12,516	113,557
Ontario.....	12,476,926	64,759,088	2,880,175 <sup>5</sup>	2,413,092	557,134	18,391	162,451
Manitoba.....	1,585,720	8,015,643	6	322,983	75,860	2,920	21,128
Saskatchewan.....	1,403,010	4,911,719	—	316,823	72,582	1,576	13,555
Alberta.....	2,199,039	8,845,304	—	477,294	103,739	2,329	18,534
British Columbia.....	5,413,702	26,431,684	925,474 <sup>6</sup>	735,267	160,174	3,169	27,901
Yukon Territory.....	46,490	156,828	—	4,265	3,358	89	750
Northwest Territories..	72,126	288,731	—	6,387	5,102	194	2,168
<b>Canada, 1969.....</b>	<b>39,591,841</b>	<b>189,522,831</b>	<b>4,319,551</b>	<b>6,708,205</b>	<b>1,530,402</b>	<b>46,198</b>	<b>390,471</b>

<sup>1</sup> Excludes industrial establishments that purchase power and have generating facilities. <sup>2</sup> Excludes revenue from sales to industrial establishments that purchase power and have generating facilities, totalling \$86,527,000 in 1968 and \$90,865,000 in 1969. <sup>3</sup> Includes 1,640,947,000 kwh. "no value" energy. <sup>4</sup> Includes 1,034,021,000 kwh. "no value" energy. <sup>5</sup> Includes 1,243,317,000 kwh. "no value" energy. <sup>6</sup> Includes 419,889,000 kwh. "no value" energy.

## 6.—Summary Electric Power Statistics, by Type of Establishment, 1968 and 1969

Year and Item	Electrical Utilities			Industrial Establishments	Total
	Publicly Operated	Privately Operated	Total		
<b>1968</b>					
Installed generating capacity..... kw.	26,753,224	3,845,768	30,599,012	5,309,485	35,908,497
Energy generated..... '000 kwh.	126,074,433	17,808,932	143,883,365	32,494,890	176,378,275
Hydro.....	95,034,936	12,277,822	107,312,823	27,660,105	134,972,933
Thermal.....	31,039,497	5,531,060	36,570,557	4,834,785	41,405,342
<b>Energy Made Available in Canada..... '000 kwh.</b>	<b>120,217,619</b>	<b>11,522,820</b>	<b>131,740,439</b>	<b>45,100,761</b>	<b>176,841,200</b>
Disposal of energy in Canada <sup>1</sup> ..... '000 kwh.	3,047,937	605,214	3,653,151	335,163	3,988,314
Energy exported to United States.....	5,966,145	539,923	6,506,068	6,343	6,512,411
Ultimate customers in Canada.....	5,284,647	453,684	5,743,331	5,903	5,749,234
Domestic and farm.....	595,071	69,753	664,824	413	665,237
Commercial.....	77,995	10,525	88,520	15	88,535
Power.....	8,432	961	9,393	12	9,405
Street lighting.....	1,251,417	132,717	1,384,134	1,906	1,386,040
Revenue from ultimate customers <sup>2</sup> ..... \$'000	2,788	3,095	5,883	1,834	7,717
Revenue from exports to United States.....	39,606	4,258	43,864	..	..
Employees.....	319,985	28,231	348,216	..	..
Salaries and wages..... \$'000					

For footnotes, see end of table, p. 734.

## 6.—Summary Electric Power Statistics, by Type of Establishment, 1968 and 1969—concluded

Year and Item		Electrical Utilities			Industrial Establishments	Total
		Publicly Operated	Privately Operated	Total		
1969						
Installed generating capacity.....	kw.	30,326,815	3,997,803	34,324,618	5,267,223	39,591,841
Energy generated.....	'000 kwh.	138,505,956	18,954,790	157,460,746	33,641,484	191,102,230
Hydro.....	"	107,879,013	12,702,120	120,581,133	28,665,654	149,246,787
Thermal.....	"	30,626,943	6,252,670	36,879,613	4,975,830	41,855,443
Energy Made Available in Canada....		'000 kwh.				189,522,831
Disposal of energy in Canada.....	'000 kwh.	138,621,496	17,025,549	155,647,045	33,875,786	189,522,831
Energy exported to United States.....	"	3,141,217	701,572	3,842,789	476,762	4,319,551
Ultimate customers in Canada.....	No.	6,164,476	537,265	6,701,741	6,464	6,708,205
Domestic and farm.....	"	5,455,401	456,995	5,912,396	6,013	5,918,409
Commercial.....	"	622,764	68,693	691,457	422	691,879
Power.....	"	77,381	10,582	87,963	17	87,980
Street lighting.....	"	8,930	995	9,925	12	9,937
Revenue from ultimate customers <sup>2</sup> .....	\$'000	1,386,000	143,148	1,529,148	2,025	1,531,173
Revenue from exports to United States.....	"	9,056	3,522	12,578	2,436	15,014
Employees.....	No.	42,096	4,102	46,198	..	..
Salaries and wages.....	\$'000	360,487	29,984	390,471	..	..

<sup>1</sup> Excludes sales by electrical utilities to industrial establishments with generating facilities, sales by industrial establishments with generating facilities to electrical utilities, and inter-industrial sales. <sup>2</sup> Excludes revenue from sales by electrical utilities to industrial establishments with generating facilities, and inter-industrial sales.

## 7.—Electric Power Generated classified by Type of Establishment, by Province, 1968 and 1969

Year and Province or Territory	Electrical Utilities		Industrial Establishments	Total
	Publicly Operated	Privately Operated		
	'000 kwh.	'000 kwh.	'000 kwh.	'000 kwh.
<b>1968</b>				
Newfoundland.....	790,826	2,630,056	393,396	3,814,278
Prince Edward Island.....	7,095	191,943	—	199,038
Nova Scotia.....	1,357,479	1,309,586	395,299	3,062,364
New Brunswick.....	3,522,490	82,780	593,601	4,198,871
Quebec.....	43,184,200	5,932,798	16,013,258	65,130,256
Ontario.....	51,970,491	1,467,043	3,029,330	56,466,864
Manitoba.....	6,705,540	—	72,688	6,778,228
Saskatchewan.....	3,975,451	684,252	216,784	4,876,487
Alberta.....	1,960,519	5,158,635	632,722	7,751,876
British Columbia.....	12,297,753	325,796	11,086,797	23,710,346
Yukon Territory.....	99,153	17,877	19,576	136,606
Northwest Territories.....	203,436	8,186	41,439	253,061
<b>Canada, 1968.....</b>	<b>126,074,433</b>	<b>17,808,952</b>	<b>32,494,890</b>	<b>176,378,275</b>
<b>1969</b>				
Newfoundland.....	1,075,659	2,682,388	388,871	4,146,918
Prince Edward Island.....	7,094	210,893	—	217,987
Nova Scotia.....	1,363,280	1,359,257	415,110	3,137,647
New Brunswick.....	3,925,240	136,403	642,611	4,704,254
Quebec.....	46,884,489	5,899,272	16,204,158	68,987,919
Ontario.....	56,234,293	1,558,248	3,038,364	60,830,905
Manitoba.....	7,297,192	—	81,896	7,379,088
Saskatchewan.....	4,610,740	687,563	223,879	5,522,182
Alberta.....	2,117,153	6,089,104	671,691	8,877,948
British Columbia.....	14,635,367	303,731	11,912,735	26,851,823
Yukon Territory.....	117,344	18,375	21,109	156,828
Northwest Territories.....	238,115	9,556	41,060	288,731
<b>Canada, 1969.....</b>	<b>138,505,956</b>	<b>18,954,790</b>	<b>33,641,484</b>	<b>191,102,230</b>

Average domestic and farm consumption rose from 6,571 kwh. in 1968 to 6,834 kwh. in 1969. Among the provinces, the averages in 1969 varied from a low of 3,565 kwh. in Prince Edward Island to a high of 8,374 kwh. in Manitoba. For domestic and farm customers the average annual bill was \$102.64 in 1969 as against \$97.52 in 1968.

Although many utilities do not keep records on farm customers separate from other domestic customers, the data reported on farm service indicate that the average consumption rose from 9,155 kwh. per customer in 1968 to 10,069 kwh. in 1969 and the average bill from \$156.26 to \$171.84.

#### 8.—Domestic and Farm Service by Electrical Utilities and Industrial Establishments, 1965-69

Item		1965	1966	1967	1968	1969
Customers.....	No.	5,282,471	5,433,400	5,590,676	5,749,234	5,918,409
Kilowatt-hours sold.....	'000	29,737,741	32,131,003	35,005,414	37,779,593	40,446,333
Revenue received.....	\$'000	424,924	453,534	507,131	560,671	607,501
Kilowatt-hours per customer.....	No.	5.630	5.914	6.261	6.571	6.834
Average annual bill.....	\$	80.44	83.47	90.71	97.52	102.64
Revenue per kwh.....	cts.	1.43	1.41	1.45	1.48	1.50

In 1969, natural gas accounted for 11.9 p.c. of thermal generation by utilities, coal for 69.2 p.c., petroleum fuels for 17.5 p.c. and nuclear fuel for 1.3 p.c.; corresponding proportions in 1968 were 17.3 p.c., 61.4 p.c., 19.0 p.c., and 2.3 p.c., respectively.

#### 9.—Fuel Used by Electrical Utilities to Generate Power, by Province, 1968 and 1969

Year and Province or Territory	Coal		Petroleum Fuels		Gas	
	Quantity	Value	Quantity	Value	Quantity	Value
	tons	\$	Imp. gal.	\$	Mcf.	\$
<b>1968</b>						
Newfoundland.....	—	—	9,480,103	1,238,512	—	—
Prince Edward Island.....	—	—	16,590,592	1,102,661	—	—
Nova Scotia.....	712,358	6,250,117	54,180,591	3,424,000	—	—
New Brunswick.....	263,964	2,232,268	95,561,403	5,739,482	—	—
Quebec.....	—	—	177,772,229	12,095,472	—	—
Ontario.....	6,088,264	53,742,611	14,768,182	2,093,703	244,438	87,280
Manitoba.....	197,046	854,944	4,209,347	764,958	1,103,285	279,252
Saskatchewan.....	1,491,716	2,644,953	8,882,629	483,973	21,910,885	4,236,509
Alberta.....	2,345,452	2,747,477	8,473,646	570,661	34,221,570	6,078,023
British Columbia.....	—	—	40,560,022	3,550,484	22,256,508	4,907,137
Yukon Territory.....	—	—	924,816	257,414	—	—
Northwest Territories.....	—	—	2,908,793	716,484	—	—
<b>Canada, 1968.....</b>	<b>11,098,800</b>	<b>68,472,370</b>	<b>434,312,353</b>	<b>32,037,804</b>	<b>79,736,686</b>	<b>15,588,201</b>
<b>1969</b>						
Newfoundland.....	—	—	13,776,662	1,591,973	—	—
Prince Edward Island.....	—	—	17,796,492	1,153,770	—	—
Nova Scotia.....	762,138	6,675,134	49,039,460	3,262,814	—	—
New Brunswick.....	164,987	1,386,986	81,161,780	4,960,081	—	—
Quebec.....	—	—	195,692,480	13,423,213	—	—
Ontario.....	7,058,638	62,650,904	19,969,255	2,925,872	375,006	169,928
Manitoba.....	55,735	266,472	4,604,394	799,703	53,046	17,446
Saskatchewan.....	1,233,497	2,100,574	9,814,772	495,451	13,788,058	2,942,082
Alberta.....	2,598,755	3,288,684	16,054,440	827,320	37,947,220	6,598,428
British Columbia.....	—	—	8,926,395	1,472,425	6,690,598	1,408,269
Yukon Territory.....	—	—	1,095,986	304,036	—	—
Northwest Territories.....	—	—	3,629,869	849,736	—	—
<b>Canada, 1969.....</b>	<b>11,873,750</b>	<b>76,368,754</b>	<b>421,561,985</b>	<b>32,066,394</b>	<b>58,853,928</b>	<b>11,136,153</b>



## Section 5.—Electrical Utility Ownership and Regulation

Federal Government regulation of electrical utilities with respect to the export of electric power and the construction of lines over which such power is exported falls within the jurisdiction of the National Energy Board (see Index).

Power is generated in Canada by publicly and privately operated utilities and by industrial establishments. Table 7, p. 734, giving statistics by type of establishment shows that over 70 p.c. of the total electric power generated in 1969 was produced by publicly operated utilities, 10 p.c. by privately operated utilities and 18 p.c. by industrial establishments. However, ownership differs greatly in different areas of the country. Quebec output at one time was predominantly from privately owned plants but since 1963 has been almost entirely publicly owned. In Ontario almost all electric power has been produced by a publicly owned utility for over 60 years.

Because the determination of market prices and regulation of services is limited to inter-fuel competition with oil, gas and coal, some regulation of electrical utilities has been attempted in all provinces. In most of them the generation and main transmission of power is the responsibility of a provincial Crown corporation. Investor-owned electrical utilities are predominant in Alberta and play a significant role in Nova Scotia, Newfoundland, Prince Edward Island, Ontario and British Columbia; they contribute about 10 p.c. of the total power generated. Generating facilities in industrial establishments represented 13.3 p.c. of installed capacity at the end of 1970 and generated 16.0 p.c. of the electric energy produced during the year. There is an annual decline in industrial generation as it becomes increasingly attractive to purchase power from utilities, which can take fuller advantage of larger unit sizes and operational flexibility. Even when process steam is required for an industrial operation, there are instances when it is advantageous to purchase both steam and power from the electrical utility.

**Newfoundland.**—The Newfoundland and Labrador Power Commission was established by the provincial government in 1954 for the purpose of supplying power wherever needed throughout the province. The Commission began large-scale production of electric energy in 1967 when the Baie d'Espoir plant began operating and the provincial transmission grid was established. Power is supplied from this grid to several industries direct and to investor-owned electric distribution companies for distribution. The Newfoundland Light and Power Company is the principal distributor. Bowater Power Company Limited supplies the Bowater Newfoundland Pulp and Paper Mills Limited and several large mining operations. Electricity is provided to isolated areas through Rural Electricity Authority and Power Distribution Districts principally through diesel generator sets. In Labrador, the Churchill Falls (Labrador) Corporation, a subsidiary of Brinco, is engaged in the development of the massive Churchill Falls power project which will commence production in 1972. This company also controls the Twin Falls Power Corporation which operates a substantial generating plant in the vicinity of Churchill Falls on the Unknown River and serves iron ore mining centres in western Labrador.

**Prince Edward Island.**—The Maritime Electric Company provides service to customers in Charlottetown and in most of the towns, villages and rural areas in the province. The Company, having total assets of \$30,514,622, supplied 247,368,000 kwh. in 1970, an increase of 17 p.c. over 1969, and had an installed capacity of 70,500 kw. The town of Summerside is supplied by a municipal electric department with an installed generating capacity of 6,900 kw. It is interconnected with the Maritime Electric Company System.

**Nova Scotia.**—The self-supporting Nova Scotia Power Commission, with total fixed assets of \$200,895,782, is one of the province's largest industries. The Commission was

created under the Power Commission Act of 1919 to develop the limited but useful hydro potential of the province, as investigated by the Water Power Commission in 1915, and to control exploitation of the province's rivers. The first objective was to develop remote hydro sites to supply energy at the lowest possible cost to new industries, particularly pulp and paper, and a few centres of population. The 1937 Rural Electrification Act, however, provided equalization grants and made it possible to carry out the formidable task of bringing power and energy to low-density farm and rural village areas. The Commission now employs about 1,200 full-time personnel and its operating revenues in the year ended Mar. 31, 1970 amounted to \$34,000,000. Deliveries in that year were 26 p.c. higher than in 1968-69, most of the growth being comprised of service to new and expanded industry.

Almost 7,000 miles of transmission and distribution lines conduct the energy generated by 513,000-kw. capacity to and from every corner of the province. Most of the hydro potential of Nova Scotia has been developed so that emphasis has now been placed on thermal production for future power needs.

#### 10.—Capacity and Output of the Nova Scotia Power Commission, Year Ended Mar. 31, 1971

System <sup>1</sup> and First Year of Operation	Present Installed Capacity	Output
	kw.	kwh.
<b>Western Zone—</b>		
Harmony (1943).....	600	2,676,000
Roseway (1930).....	890	4,457,230
Gulch (1952).....	6,000	18,938,200
Ridge (1957).....	4,000	7,826,300
Sissiboo (1960).....	6,000	23,290,740
Weymouth (1961).....	18,000	33,281,840
St. Margaret's (1921).....	10,400	34,030,000
<b>Mersey—</b>		
Upper Lake Falls (1928).....	5,400	18,905,000
Lower Lake Falls (1928).....	7,380	31,296,000
Big Falls (1928).....	9,000	40,340,000
Cowie Falls (1938).....	4,500	35,395,200
Deep Brook (1950).....	9,000	39,022,700
Lower Great Brook (1955).....	7,200	16,233,510
Tusket (1929).....	2,160	13,911,930
Bridgewater (1925).....	800	2,443,058
<b>Eastern Zone—</b>		
Malay Falls (1924).....	3,600	12,976,930
Ruth Falls (1925).....	5,000	40,165,720
Liscomb (1957).....	450	3,140,690
Trenton (thermal) (1951).....	210,000	770,095,700
<b>Canseau Zone—</b>		
Barrie Brook (1940).....	360	905,560
Dickie Brook (1948).....	3,800	8,787,080
Point Tupper (thermal) (1969).....	80,000	152,609,500
<b>Cumberland Zone—</b>		
Maccan (thermal) (1927).....	26,850	37,946,400
<b>Eastern Light &amp; Power (subsidiary) —</b>		
Seaboard (thermal) (1930).....	91,610	571,315,979
<b>Totals.....</b>	<b>513,000</b>	<b>2,063,008,670</b>
<b>Under Construction—</b>		
Point Tupper (thermal extension).....	150,000	...
Tusket (gas turbine).....	25,000	...

<sup>1</sup> Hydro unless otherwise noted.

**New Brunswick.**—The New Brunswick Electric Power Commission was incorporated under the Electric Act, 1920. Generating stations owned by the Commission at Mar. 31, 1970 were as follows:—

<i>Plant</i>	<i>Type</i>	<i>Capacity</i>	<i>Plant</i>	<i>Type</i>	<i>Capacity</i>
		kw.			kw.
Grand Falls.....	Hydro	60,500	Grand Lake.....	Steam	100,000
Musquash.....	Hydro	7,500	Saint John (Dock St.)...	Steam	16,785
Tobique.....	Hydro	20,000	Chatham.....	Steam	36,155
Beechwood.....	Hydro	115,000	Grand Manan.....	Diesel	2,811
Milltown.....	Hydro	3,900	Macataquac.....	Hydro	320,000
Sisson.....	Hydro	9,500	Dalhousie.....	Steam	100,000
Courtenay Bay.....	Steam	269,300			
			<b>TOTAL CAPACITY.....</b>		<b>1,061,451</b>

All the foregoing generating units with the exception of Grand Manan are interconnected in a province-wide grid system. The statistical information given in Table 11 shows the growth of the Commission's undertakings since 1966.

**11.—Growth of the New Brunswick Electric Power Commission, Years Ended Mar. 31, 1966-70**

<i>Item</i>	1966	1967	1968	1969	1970
High-voltage transmission line... miles	2,255	2,315	2,495	2,540	2,549
Distribution line..... "	8,586	8,664	8,671	8,765	8,810
Direct customers..... No.	124,030	124,753	128,457	140,187	144,702
Plant capacities..... kw.	430,261	540,961	884,563	939,055	1,061,451
Power generated (incl. purchases) kwh.	2,571,484,730	3,013,532,860	3,356,151,990	3,856,535,510	4,196,431,200
Capital invested..... \$	247,896,370	291,563,329	343,927,953	372,547,866	389,457,753
Revenue..... \$	33,108,342	37,601,262	40,565,894	45,023,257	48,036,037

The provincial electric power system is interconnected with an extensive high-voltage transmission system and, with the utilities in Nova Scotia, forms part of the Maritime Power Pool. At the end of 1970, construction was under way on important interconnections with Hydro-Quebec and with utilities in the New England States. These interconnections will provide improved opportunities to meet the growing load requirements in the most economic fashion, not only in New Brunswick but throughout the Maritime Power Pool.

**Quebec.**—*Stream and Reservoir Control.*—The Quebec Streams Commission was created in 1910 (SQ 1910, c. 5) and given additional powers in 1912 (RSQ 1925, c. 46) and 1930 (SQ 1930, c. 34); it was authorized to ascertain the water resources of the province, to make recommendations regarding their control and to construct and operate certain storage dams to regulate the flow of streams. In 1955, the Commission was abolished and its powers and attributions transferred to the Hydraulic Resources Department, now the Department of Natural Resources. The rivers controlled by the Commission at the time of transfer, either by means of dams on the rivers or by regulating the outflow of lakes at the headwaters, were: the St. Maurice, the Gatineau, the Lièvre, the St. Francis, the Chicoutimi, the Au Sable and the Métis. The Commission also operated nine reservoirs on the North River, two in the watershed of the Ste. Anne de Beaupré River and one at the outlet of Lake Morin on Rivière du Loup (lower). In 1965, eleven auxiliary reservoirs on the St. Maurice System and two on the Gatineau were turned over by the Department of Natural Resources to the Quebec Hydro-Electric Commission for operation and maintenance.

Storage reservoirs otherwise controlled or operated are: the Lake St. John, the Lake Manouane and Passe Dangereuse on the Peribonca River controlled by the Aluminum Company of Canada; the Onatchiway on the Shipshaw River controlled by Price Brothers and Company Limited; Memphremagog Lake on the Magog River controlled by the Domizion Textile Company; and Témiscamingue and Quinze Lakes on the Ottawa River controlled by the federal Department of Public Works. Storage reservoirs under the control of the Quebec Hydro-Electric Commission are: Témiscouata Lake on the Mada-waska River, Kipawa Lake on the Ottawa River, Lac Dozois on the upper Ottawa River,



Lac Cassé in the Bersimis River watershed and Lac Ste. Anne on the Toulouste River, a tributary of the Manicouagan River.

*The Quebec Hydro-Electric Commission.*—The Quebec Hydro-Electric Commission was established in 1944 (SQ 1944, c. 22) for the purpose of supplying power to the municipalities, to industrial and commercial undertakings and to citizens of the Province of Quebec at the lowest rates consistent with sound financial administration. On May 1, 1963, the Commission acquired control of the following privately owned electrical utilities operating in the Province of Quebec: the Shawinigan Water and Power Company, the St. Maurice Power Corporation, the Quebec Power Company, the Southern Canada Power Company, the Gatineau Power Company, the Northern Quebec Power Company, the Saguenay Electric Company, and the Lower St. Lawrence Power Company. As a result of these transactions, all electricity production, except for facilities operated by certain industrial organizations in their own manufacturing operations, was brought under the control of a single authority. The services of the Commission now cover virtually the entire province except for local distribution of small amounts of electricity by some municipalities, most of which is purchased from the Commission or its subsidiaries.

At the end of 1970, Hydro-Quebec and its subsidiaries had in operation 53 hydro-electric stations having a capacity of 9,955,261 kw., and 16 thermal-electric stations having a capacity of 661,992 kw.—a total capacity in operation of 10,617,253 kw. These facilities permit the balanced distribution of power throughout Quebec and the most efficient use of the water power resources of the province. Power plant construction under way in Quebec during 1970 is outlined at pp. 726-727.

## 12.—Summary Statistics of the Operations of the Quebec Hydro-Electric Commission, 1968-70

Item	1968	1969	1970
Installed capacity..... kw.	8,364,673	9,808,921	10,617,253
Hydro..... "	7,709,771	9,152,891	9,955,261
Thermal..... "	654,902	656,030	661,992
Consolidated system peak load..... "	8,193,000	8,594,000	8,873,000
Available energy..... '000,000 kw.	47,728	51,079	52,402
Total electricity sales..... \$	386,942,000	416,012,000	418,246,000
Customers, at Dec. 31..... No.	1,707,773	1,761,052	1,821,488
Revenue..... \$	397,828,000	431,108,000	494,319,000
Operating expenditures, incl. power purchases..... \$	234,638,000	254,563,000	264,762,000
Capital expenditures..... \$	268,922,000	244,846,000	291,107,000
Properties and plant at cost..... \$	3,782,646,000	4,012,801,000	4,287,676,000
Employees, at Dec. 31, excl. construction personnel..... No.	11,723	11,890	12,012
Salaries and wages paid, excl. construction..... \$	104,320,000	109,166,000	118,278,000

**Ontario.**—The Hydro-Electric Power Commission of Ontario is a corporate entity, a self-sustaining public enterprise endowed with broad powers with respect to the supply of electricity throughout the Province of Ontario. Its authority is derived from an Act of the Provincial Legislature passed in 1906 to give effect to recommendations of earlier advisory commissions that the water powers of Ontario should be conserved and developed for the benefit of the people of the province. It now operates under the Power Commission Act (SO 1907, c. 19) passed in 1907 as an amplification of the Act of 1906 and subsequently modified from time to time (RSO 1960, c. 300, as amended). The Commission may have from three to six members, all of whom are appointed by the Lieutenant-Governor in Council. Two commissioners may be members of the Executive Council of the Province of Ontario.

The basic principle governing the financial operations of the Commission and its associated municipal utilities is that electrical service is provided at cost. The Commission interprets cost as including payments for power purchased, charges for operating and maintaining the power-supply facilities, and related fixed charges. The fixed charges represent interest on debt, provision for depreciation, allocations to reserves for contingencies and rate stabilization, and the further provision on a sinking-fund basis for the retirement of

the Commission's capital debt. While the enterprise from its inception has been self-sustaining, the province guarantees the payment of principal and interest on all bonds issued by the Commission and held by the public. In addition, the province has materially assisted the development of agriculture by contributing under the Hydro-Electric Distribution Act toward the capital cost of extending rural distribution facilities.

The East and West Systems, which had been formerly separate operating entities, were fully integrated in 1970 and, although the capacity of the interconnection is a limiting factor in the exchange of power, the combined facilities now form a unified provincial network. Statistics for 1970 have been presented for the network as a whole, and the system components for previous years have been combined. Since 1962 the entire province has been regarded for financial and administrative purposes as a unit. For general day-to-day operations it is still divided into seven regions, with regional offices located in seven major municipalities.

The Commission is concerned primarily with the provision of electric power by generation or purchase and its delivery to more than 350 electrical utilities for resale in municipalities having cost contracts with the Commission. The Commission also supplies power in bulk, although not under cost contract, to direct customers, including industrial customers whose requirements are so large or so unusual as to make service by the local municipal utilities impracticable, mines, industries in unorganized territories, and certain interconnected systems.

In addition to these operations, which represent about 90 p.c. of its energy sales, the Commission delivers electric power to retail customers in rural areas and in a small group of 15 municipalities served by Commission-owned local distribution facilities. Retail service throughout the province is provided for the most part, however, by the municipal electrical utilities, which supply ultimate customers in most cities and towns, in many villages, and in certain populous township areas. The municipal electrical utilities are owned and operated by local commissions.

In addition to administering the enterprise over which it has direct control, the Commission, under the Power Commission Act and the Public Utilities Act, exercises certain regulatory functions, particularly with respect to the group of municipal electrical utilities that it serves.

During 1970, the Commission's investment in fixed assets at cost increased by \$489,831,744 and at the end of the year amounted to \$4,588,182,936. Assets, after deducting accumulated depreciation, were \$4,612,608,485. In that year, 353 municipal electrical utilities, engaged in the retail distribution of electricity, purchased power from the Commission. The assets of these utilities, after deducting accumulated depreciation, amounted to \$1,279,598,912, of which \$520,667,796 represented the equity acquired in the Commission's systems by the municipal utilities operating under cost contracts.

### 13.—Power Developments of The Hydro-Electric Power Commission of Ontario, under Construction or Approved as at Dec. 31, 1970

Development and Location	Units	In-Service Dates	Total Installed Capacity
	No.		kw.
Fossil-Fuelled Thermal-Electric—			
Nanticoke-Lake Erie, near Port Dover (coal).....	8	1971-77	4,000,000
Lennox-Lake Ontario, near Kingston (oil).....	4	1974-77	2,295,000
Nuclear-Fuelled Thermal-Electric—			
Pickering-Lake Ontario, east of Toronto.....	4	1971-73	2,160,000
Bruce-Lake Huron, near Kincardine.....	4	1975-78	3,200,000
Combustion-Turbine—			
Pickering.....	6	1971-72	45,000
Bruce.....	—	1975	45,000 <sup>1</sup>
Hydro-Electric—			
Lower Notch-Montreal River.....	2	1971	228,000

<sup>1</sup> Tentative.

#### 14.—Resources of The Hydro-Electric Power Commission of Ontario Generated and Purchased, December 1969 and 1970

As at December—	Hydro- Electric Stations <sup>1</sup>	Thermal- Electric Stations <sup>1</sup>	Power Purchased
	kw.	kw.	kw.
1969.....	5,753,500	4,757,000	731,300
1970.....	5,965,600	6,318,000	385,900

<sup>1</sup> Dependable peak capacity—the amount of power which resources can be expected to supply at the time of the system primary peak requirements, assuming that all units are available and that the supply of water is normal. This capacity will vary from time to time in accordance with changing conditions. The capacity of a source of purchased power is based on the terms of the purchase contract.

#### 15.—Growth of The Hydro-Electric Power Commission of Ontario, 1961-70

Year	Ultimate Customers Served Directly or Indirectly	Total Power Distributed <sup>1</sup>	Assets of Commission and Municipal Utilities
	No.	kw.	\$
1961.....	1,938,897	6,463,932	3,196,429,522
1962.....	1,991,289	6,968,885	3,148,330,722
1963.....	2,041,732	7,300,296	3,225,289,707
1964.....	2,095,754	7,688,790	3,331,568,632
1965.....	2,142,281	8,348,407	3,533,238,103
1966.....	2,187,767	8,839,455	3,777,633,871
1967.....	2,245,715	9,429,075	4,071,817,215
1968.....	2,292,015	10,138,586	4,424,172,463
1969.....	2,343,807	11,057,321	4,848,001,515
1970.....	2,388,561	11,609,274	5,371,539,601

<sup>1</sup> Sum of the maximum 20-minute coincident peak loads (primary plus secondary) of each of the systems operated by the Commission, given in terms of net output of the sources of supply to each system for the last month of each fiscal year.

In addition to the Ontario Hydro province-wide system, a few investor-owned utilities provide service to customers in Cornwall, Fort Erie, Gananoque and Sault Ste. Marie.

**Manitoba.**—Manitoba Hydro is the primary developing, generating and distributing power agency in the Province of Manitoba. The corporation came into being Apr. 1, 1961, following amalgamation of the two former provincial government utilities engaged in the generation and distribution of electric power.

Manitoba Hydro operates eight hydro-electric generating stations, two thermal-electric generating stations and 27 small diesel-electric generating plants. The combined generating capability is 1,615,448 kw., hydro installations accounting for 1,196,000 kw., thermal installations for 399,750 kw. and diesel installations for 19,698 kw. Four hydro stations are located on the Winnipeg River near Winnipeg, one is on the Saskatchewan River 285 miles north of Winnipeg, two are on the Nelson River 450 miles northeast of Winnipeg and one on the Laurie River where the responsibility for supply to Sherritt Gordon Mines and the towns of Fox Lake and Lynn Lake were assumed by Manitoba Hydro in May 1970. All eight hydro stations and the thermal generating stations at Selkirk and Brandon are electrically interconnected to a common network known as the Manitoba Integrated System. Diesel installations are used to provide power to isolated northern communities where extension of hydro-electric transmission facilities is not feasible. Construction under way in 1970 is outlined at p. 728.

Manitoba Hydro serves over 600 communities and 242,296 consumers in rural Manitoba and suburban Winnipeg through a network of 37,493 miles of transmission and farm



distribution lines. The Winnipeg Hydro Electric System distributes power within the corporate limits of the city of Winnipeg. A portion of this power is generated by the city system from its own hydro and thermal plants and the remainder is purchased from Manitoba Hydro.

**Saskatchewan.**—The Saskatchewan Power Corporation was established in 1949 by the Power Corporation Act (RSS 1965, c. 40, as amended). It succeeded the Saskatchewan Power Commission which had been in operation since 1929. The original functions of the Corporation included the generation, transmission and distribution, sale and supply of electric energy. The objective was to make electricity available to all the people of the province, in abundance and at reasonable rates. Since 1952, the Corporation has been authorized to produce or purchase and to transmit, distribute, sell and supply natural or manufactured gas.

In 1970, the Corporation served 130 communities with 500 population or over, 872 smaller communities and 94 summer resorts. In addition, bulk power was supplied to the cities of Saskatoon and Swift Current and the town of Battleford. A subsidiary company, North-Sask Electric Ltd., has the responsibility for providing and improving electrical service to communities in northern Saskatchewan.

At the end of December 1970, the Corporation served approximately 271,000 customers composed of 201,648 "urban" (defined as one in which there are at least six customers) and 69,352 "rural" customers. Energy sales reached 4,600,000,000 kwh. with industrial customers accounting for 41 p.c. and residential customers for 17 p.c. of the total. During 1970, 5,100,000,000 kwh. was supplied to the system, almost all of it generated in Corporation plants. Coal accounted for 44 p.c. and hydro for 38 p.c. of the energy sources. In December, the provincial peak load reached 1,000,000 kw., for the first time. The Corporation owned and operated 5,148 miles of 72-kv.-and-over transmission lines and 71,463 miles of less than 72 kv. (excluding urban distribution).

At the end of 1970, the Corporation had invested, at cost, \$529,900,000 in electrical system assets out of a total plant-in-service investment of \$726,100,000.

#### 16.—Growth of the Saskatchewan Power Corporation, 1961-70

Year	Seasonal Gross System Peak Load	Individual Meters in Communities Served	Power Distributed <sup>1</sup>	Revenue
	kw.	No.	kwh. x 10 <sup>3</sup>	\$'000
1961.....	370,000	229,336	1,498,056	30,263
1962.....	424,700	235,386	1,645,862	33,106
1963.....	471,000	240,812	1,926,863	36,893
1964.....	539,500	246,389	2,208,150	39,778
1965.....	696,100	294,135	2,871,800	46,145
1966.....	756,500	303,016	3,391,829	52,866
1967.....	862,000	309,203	3,705,977	57,223
1968.....	918,000	314,897	4,123,446	62,425
1969.....	956,000	317,525	4,635,500	67,020
1970.....	1,066,000	318,909	5,119,500	72,387

<sup>1</sup> Power distributed = net system kwh. (net generated plus net purchased).

**Alberta.**—The generation and distribution of electric power in Alberta is handled by two major investor-owned company groups and three municipal utilities. Several other municipal systems handle local distribution of power purchased from the investor-owned utilities. The Alberta Power Commission which acted as a regulatory body for the electrical utility industry in the province but with no facilities of its own, ceased to exist on May 31, 1971; its functions were taken over in large part by the Energy Resources Conservation Board.

### 17.—Statistics of Companies or Municipalities Providing Central Station Electrical Service in Alberta, 1970

Ownership and Company or Municipality	Net Capacity as at Dec. 31	Net Peak Load during 1970	Net Generation during 1970
	kw.	kw.	'000 kwh.
<b>Privately Owned</b>			
Calgary Power Ltd.....	1,535,000	1,190,700	5,559,244 <sup>1</sup>
Canadian Utilities Ltd. and Northland Utilities Ltd.....	356,260	315,560	1,405,639
<b>Totals, Privately Owned.....</b>	<b>1,891,260</b>	<b>...</b>	<b>6,964,883</b>
<b>Publicly Owned</b>			
City of Edmonton.....	551,000	469,500	1,947,318
City of Lethbridge.....	30,700	30,400	123,017
City of Medicine Hat.....	40,500	39,900	296,696 <sup>2</sup>
<b>Totals, Publicly Owned.....</b>	<b>622,200</b>	<b>...</b>	<b>2,367,031</b>
<b>Grand Totals.....</b>	<b>2,513,460</b>	<b>...</b>	<b>9,331,914</b>

<sup>1</sup> Includes 155,999,700 kwh. supplied to British Columbia Hydro and Power Authority.  
140,600,800 kwh. supplied to system.

<sup>2</sup> Includes

The following relative percentages of capability and generation show that thermal generation predominates as a source of electric power in Alberta and that the industry is largely privately owned.

<i>Method of Generation</i>	<i>P.C. of Capability</i>	<i>P.C. of Power Generated</i>
Hydro.....	27.1	13.0
Steam and gas turbine.....	68.1	83.4
Internal combustion.....	4.8	3.6
Privately owned.....	75.2	74.6
Publicly owned.....	24.8	25.4

Following is a breakdown of the fuel used in larger thermal plants during 1970.

<i>Company or Municipality</i>	<i>Gas</i>	<i>Oil</i>	<i>Coal</i>
	Mcf.	gal.	tons
Calgary Power Ltd.—			
Wabamun.....	6,543,056	—	2,416,527
Sundance.....	148,981	—	97,096
Canadian Utilities Ltd. and Northland Utilities Ltd.—			
Drumheller.....	—	—	18,843
Battle River.....	—	—	726,624
Valleyview.....	1,667,043	—	—
Simonette.....	1,317,575	—	—
Rainbow.....	—	11,277,008	—
Fairview.....	171,243	—	—
Miscellaneous.....	342,975	543,722	—
City of Edmonton—			
Rosedale.....	21,942,953	2,560,010	—
Clover Bar.....	2,156,327	—	—
City of Lethbridge.....	2,533,039	—	—
City of Medicine Hat.....	5,074,423	—	—
<b>TOTALS.....</b>	<b>41,897,615</b>	<b>14,380,740</b>	<b>3,259,090</b>

**British Columbia.**—The British Columbia Hydro and Power Authority is a corporation and an agency of the Crown in right of the Province of British Columbia. B.C. Hydro operates an extensive system of public utility services. Electric energy is generated,

transmitted and distributed throughout areas of the province containing more than 90 p.c. of the population. Natural gas is purchased and distributed in Greater Vancouver and in the Fraser Valley eastward to Hope, and liquefied petroleum gas is distributed in Greater Victoria. B.C. Hydro operates three transportation services: an urban passenger transportation system serves Greater Vancouver and Greater Victoria; an interurban passenger transportation system serves Greater Vancouver, the Fraser Valley eastward to Hope, between Vancouver and Victoria and between Vancouver and Nanaimo (via ferries of the British Columbia Ferry Authority); and a rail freight system serves Greater Vancouver and the Fraser Valley eastward to Chilliwack.

Of B.C. Hydro's total electric power requirements of 16,564,000,000 kwh. for the year ended Mar. 31, 1971, 14,265,000,000 kwh. or 86 p.c. were produced by hydro-electric stations and 1,536,000,000 kwh. and 9 p.c. by thermal plants; the remaining 763,000,000 kwh. were purchased primarily from Canadian sources. Kilowatt-hours of electricity sold during 1970-71 (14,833,000,000) were 7.6 p.c. higher than during the previous year, with gains recorded for all categories of customers. Residential consumption moved up 12.7 p.c., commercial 10.7 p.c., and industrial 4.4 p.c.; the latter is a sharp decline from the previous year's increase of 11.6 p.c., mainly as a result of labour disputes. At Mar. 31, 1971, the number of customers served with electricity totalled 690,000, an increase of 38,000 during the year. The average annual rate for residential customers remained at 1.9 cents a kilowatt-hour, and the average annual residential consumption increased from 6,651 kwh. to 6,949 kwh.



*Mica Dam on the Columbia River, 85 miles north of Revelstoke, B.C., nearing its crest height of 800 feet. Final earth-filling in 1972 will complete placement of nearly 43,000,000 cubic yards of fill and first water behind the structure will gather in the spring of 1973. The powerhouse on the site will house six generators with a total capacity of 2,600,000 kw.*



**18.—Summary Statistics of the British Columbia Hydro and Power Authority,  
Year Ended Mar. 31, 1971**

Item	Amount
Generating capacity.....	'000 kw.
Hydro.....	3,514
Thermal.....	2,455 <sup>1</sup>
	1,059
Power requirements.....	'000,000 kwh.
Generated.....	16,564
Purchased, etc.....	14,613
	683
Integrated system peak one-hour demand.....	'000 kw.
	2,769
Customers at year-end.....	No.
	690,000
Electricity sold.....	'000,000 kwh.
	14,833
Proportionate Sales—	
Residential.....	p.c.
Other systems (mainly residential).....	28
Commercial, industrial, etc.....	1
	71
Pole Miles of Line—	
Transmission (high voltage).....	No.
Distribution primaries.....	6,487 <sup>1</sup>
	15,631 <sup>1,2</sup>
Revenue (electric).....	\$'000
	192,974

<sup>1</sup> 1970 figures.<sup>2</sup> Including 567 underground circuit miles.

**Yukon and Northwest Territories.**—The Northern Canada Power Commission, a Crown corporation established in 1956, operates under authority of the Northern Canada Power Commission Act (RSC 1970, c. N-21) which empowers it to survey utility requirements, construct, and operate public utility plants in the Northwest Territories, Yukon Territory and, subject to the approval of the Governor General in Council, elsewhere in Canada. It is a requirement of the authorizing Act that projects undertaken by the Commission shall be self-sustaining; consequently rates charged for utilities supplied must provide sufficient revenue to cover interest on investment, repayment of principal over a period of years, operating and maintenance expenses, and a contingency reserve.

The Commission has hydro-electric power developments on the Yukon River near Whitehorse and on the Mayo River near Mayo in the Yukon Territory; in the Northwest Territories, it has developments on the Snare River northwest of Yellowknife and the Taltson River northeast of Fort Smith.

The 5,100-kw. Mayo River hydro-electric development has supplied power to mining properties in the Elsa and Keno areas and to the communities of Mayo and Keno City since 1952. The Whitehorse Rapids power development (hydro capacity 19,000 kw.), in service since 1958, supplies power to the Yukon Electrical Company for distribution in the city of Whitehorse and to a copper mining operation located within a few miles of Whitehorse. A 225-mile transmission line, completed in 1969, supplies the Anvil Mining Corporation Limited's lead and zinc mine mill complex at Faro in the Vangorda Creek area. A 9,000-kw. peaking standby diesel-electric generating plant, situated adjacent to the hydro-electric plant at Whitehorse, was commissioned in December 1968, and an additional 5,000-kw. diesel-electric plant was installed in 1970. Also, in 1970, a 5,000-kw. diesel-electric plant was installed at Faro, near the Vangorda Creek end of the 225-mile transmission line.

The two Snare River hydro-electric power developments (total capacity 14,000 kw.), commissioned in 1948 and 1960, supply power to the gold mines in the Yellowknife area, the city of Yellowknife, and the communities of Rae/Edzo. These two plants are operated by remote control from Yellowknife and have been supplemented by a 5,000-kw. diesel-electric

plant in Yellowknife, completed in 1970. The Taltson River hydro-electric plant is an 18,000-kw. development supplying the lead-zinc mining and milling operation at Pine Point and the communities of Fort Smith, Pine Point and Fort Resolution, N.W.T. This plant is operated by remote control from Fort Smith. A 5,000-kw. diesel-electric plant was completed in 1970 at Pine Point.

Diesel-electric power plants are operated by the Commission at Aklavik, Coppermine, Tuktoyaktuk, Fort Norman, Fort Franklin, Cambridge Bay, Fort Good Hope, Norman Wells, Chesterfield Inlet, Baker Lake in the Northwest Territories, at Dawson in the Yukon Territory, and at Field in British Columbia. The Commission also operates and maintains utility plants comprising electric power, central heat, water and sewerage services at Inuvik, Frobisher Bay, Fort McPherson and Fort Simpson in the Northwest Territories and Moose Factory in Ontario, and operates the water and sewerage systems at Dawson in the Yukon Territory.

Investor-owned generation provides electric power service to several regions within the Territories. In the Yukon Territory, Yukon Electrical Company Limited has generation facilities near Whitehorse and several isolated diesel plants. In addition, the Company provides distribution of electric power in Whitehorse, Carmacks, Carcross and Keno Hill with supplies purchased from the Northern Canada Power Commission. In the Northwest Territories, Plains Western Gas and Electric Co. Ltd. distributes power (supplied by NCPC) in Yellowknife; Northland Utilities has generation and distribution facilities in Hay River, Fort Providence and Enterprise.

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## CHAPTER XV.—MANUFACTURES\*

### CONSPECTUS

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*The interpretation of the symbols used in the tables throughout the Year Book will be found on p. vii of this volume.*

Section 1 of this Chapter contains a summary of the regularly issued statistical data on the manufacturing industries of Canada, based on the annual Census of Manufactures and on monthly and quarterly surveys. Section 2 is a special study on the trends in the number of manufacturing establishments.

### Section 1.—Statistical Data on Canadian Manufacturing Industries

Statistics on the manufacturing industries are issued by Statistics Canada on an annual, monthly and quarterly basis, depending on the type of data. The basic annual data are the results of the annual Census of Manufactures. Among the monthly figures available, two important sets of data provide a basis for projecting figures of the annual Census of Manufactures—the monthly survey of manufacturers' shipments, inventories and orders, and monthly estimates of employees by industry.

The monthly shipments, inventories and orders series is published for the manufacturing industries of Canada and the provinces, with breakdowns by industry group and by selected industry in the case of the totals for Canada. They are based on a survey of respondents to the annual Census and are projections of the Census total, with the qualification that new entries into the manufacturing industries since then are not covered. (This contributes to the tendency shown by monthly shipments figures, for instance, to fall slightly below those of the subsequent annual Census for the same year.) The monthly estimates of employees by industry provide figures on total employees in the manufacturing industries for Canada and the provinces, each classified into durable and non-durable industries. Like the monthly shipments survey, the figures are based partly on statistical sampling. Both sets of monthly figures also yield totals for the calendar year, while the annual Census includes some reports made on a respondent's fiscal year differing from the calendar year. (The effect of this is not large.)

These data relate to establishments—roughly corresponding to the popular conception of a plant, factory or mill—and, for certain statistics, to non-manufacturing units known as "head offices, sales offices and auxiliary units". For some purposes, companies rather

\* Except where otherwise indicated, this Chapter was prepared in the Manufacturing and Primary Industries Division, Statistics Canada.



than plants or factories are of interest. For example, a company owning factories, mines and merchandising outlets will normally report its profit for the whole company rather than divide it among the different industrial activities in which it is engaged. Thus, the quarterly survey of corporation profits provides figures on sales, profits and certain other statistics for whole companies classified to industries on the basis of their principal activities (for instance, factories might be included in mining or mines in the manufacturing industry). Such figures are generally not comparable with establishment statistics.

Various other monthly and quarterly surveys relate to commodities rather than to establishments or companies. That is, they account for production or shipments of particular products without regard to the industry in which they are produced.

In addition to providing estimates of over-all employment in manufacturing (and other industries), monthly surveying of employment, hours and payrolls results in indexes of employment for larger establishments by industry and by province and sub-provincial area, and in data on average hours and earnings. Monthly indexes of industrial production provide measures of the physical volume of output of the manufacturing industries. That is, they measure output, net of the effects of price changes. These indexes afford annual averages which can be used to indicate movement in the real domestic product at factor cost originating in the manufacturing industries. In addition, many users find valuable information in the large number of monthly industry selling price indexes for various manufacturing industries.

### Subsection 1.—Post-Census Data on Manufacturing

This Subsection is included to give some preliminary data for 1970 and 1971 based on monthly or quarterly surveys, since the results of the Census of Manufactures for 1970 were still in the processing stage at the time of preparation of this Chapter. Some factors influencing the levels of current and annual Census figures in comparison with each other are indicated in the preceding text.

Table 1 compares the value of shipments of goods of own manufacture, by province, for the year 1970 (from a monthly survey\*) with data for 1969 and earlier censuses, and Table 2 makes similar comparisons for industry groups. Table 3 gives estimates of annual averages of employees in Canadian manufacturing industries by province for 1969 and 1970 compared with the preliminary 1969 Census of Manufactures totals for the provinces and the Yukon and Northwest Territories. Table 4 gives company data on profitability in various manufacturing industry groups for the years 1963-70; because these figures† relate to companies and those of the Census of Manufactures relate to establishments (roughly speaking, plants), the two series are of limited comparability.

\* Statistics Canada publication, *Inventories, Shipments and Orders in the Manufacturing Industries* (Catalogue No. 31-001).

† Statistics Canada publication, *Estimates of Employees by Province and Industry* (Catalogue No. 72-008).

‡ Statistics Canada publication, *Industrial Corporations* (Catalogue No. 61-003).

### 1.—Value of Shipments of Goods of Own Manufacture, by Province, 1961 and 1966-70

Province or Territory	1961	1966	1967	1968	1969 <sup>p</sup>	1970 <sup>p</sup>
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000
Newfoundland.....	135.9	194.1	186.1	197.5	242.4	265.0
Prince Edward Island.....	30.6	46.8	51.1	51.7	56.9	..
Nova Scotia.....	381.4	612.5	610.3	663.3	731.5	759.9
New Brunswick.....	390.6	547.2	573.9	633.6	708.9	713.0
Quebec.....	7,022.2	10,464.5	10,966.4	11,742.9	12,809.0	13,044.7
Ontario.....	11,563.7	19,452.6	20,259.7	21,942.6	23,851.5	23,700.5
Manitoba.....	716.7	1,019.0	1,079.7	1,118.8	1,230.0	1,244.9
Saskatchewan.....	331.9	470.4	479.6	489.2	530.4	578.0
Alberta.....	935.5	1,429.0	1,555.0	1,667.0	1,849.3	1,863.4
British Columbia.....	1,927.0	3,063.7	3,190.0	3,350.4	3,917.8	3,757.3
Yukon and Northwest Territories...	3.4	3.7	3.7	4.5	5.2	..
<b>Canada.....</b>	<b>23,439.0</b>	<b>37,303.5</b>	<b>38,955.4</b>	<b>42,061.6</b>	<b>45,932.9</b>	<b>45,991.7<sup>1</sup></b>

<sup>1</sup> Includes Prince Edward Island and the Yukon and Northwest Territories.

**2.—Value of Shipments of Goods of Own Manufacture, by Industry Group, 1961 and 1966-70**

Industry Group	1961	1966	1967	1968	1969 <sup>p</sup>	1970 <sup>p</sup>
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000
Food and beverage industries.....	5,039.5	7,062.0	7,429.3	7,674.3	8,223.8	8,619.5
Tobacco products industries.....	334.9	429.8	493.3	508.8	487.9	524.0
Rubber industries.....	331.1	540.5	584.4	565.3	632.8	630.0
Leather industries.....	291.2	370.9	369.1	396.2	412.3	405.7
Textile industries.....	874.5	1,346.9	1,404.9	1,526.8	1,688.4	1,579.2
Knitting mills.....	219.4	320.9	325.5	377.1	402.6	407.8
Clothing industries.....	802.7	1,152.6	1,176.8	1,258.3	1,331.8	1,327.8
Wood industries.....	1,036.2	1,592.8	1,675.6	1,966.3	2,148.6	1,959.6
Furniture and fixture industries.....	359.6	602.7	640.2	660.3	729.0	722.3
Paper and allied industries.....	2,203.5	3,165.7	3,231.2	3,422.0	3,833.8	3,879.7
Printing, publishing and allied industries.....	854.8	1,204.7	1,297.3	1,370.4	1,488.9	1,531.1
Primary metal industries.....	1,937.0	3,085.1	3,052.5	3,384.2	3,577.2	4,021.5
Metal fabricating industries (except machinery and transportation equipment industries).....	1,510.6	2,763.7	2,732.1	2,899.9	3,162.0	3,209.8
Machinery industries (except electrical machinery).....	658.3	1,464.2	1,516.9	1,480.4	1,734.7	1,794.9
Transportation equipment industries.....	1,845.8	4,238.4	4,720.9	5,597.4	6,484.6	5,668.8
Electrical products industries.....	1,208.3	2,186.6	2,312.5	2,407.5	2,607.5	2,640.5
Non-metallic mineral products industries.....	676.0	1,121.4	1,082.2	1,204.2	1,286.9	1,272.9
Petroleum and coal products industries.....	1,219.2	1,495.3	1,558.2	1,676.0	1,720.3	1,784.1
Chemical and chemical products industries.....	1,435.8	2,174.2	2,268.8	2,428.6	2,582.0	2,633.6
Miscellaneous manufacturing industries.....	600.5	985.0	1,083.8	1,257.5	1,398.0	1,379.0
<b>All Manufacturing Industries.....</b>	<b>23,439.0</b>	<b>37,303.5</b>	<b>38,955.4</b>	<b>42,061.6</b>	<b>45,932.9</b>	<b>45,991.7</b>

**3.—Employees in Manufacturing Industries, by Province, 1969 and 1970**

Province or Territory	1969 Annual Census	Monthly Estimates	
		1969 Average	1970 Average
	'000	'000	'000
Newfoundland.....	12.3	12.0	12.6
Prince Edward Island.....	2.6	2.5	2.6
Nova Scotia.....	33.2	33.0	32.0
New Brunswick.....	29.0	29.2	28.5
Quebec.....	529.1	527.0	522.2
Ontario.....	823.3	837.0	821.2
Manitoba.....	49.4	50.2	49.5
Saskatchewan.....	15.3	15.5	15.2
Alberta.....	52.4	54.1	54.1
British Columbia.....	126.4	130.7	129.4
Yukon and Northwest Territories.....	0.2	..	..
<b>Canada.....</b>	<b>1,673.3</b>	<b>1,691.4</b>	<b>1,667.6</b>

**4.—Net Profit Before Taxes, as a Percentage of Total Revenue of Corporations classified to the Manufacturing Industries and Forestry, 1963-70**

Industry Group	1963	1964	1965	1966	1967	1968	1969	1970
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
Food and beverage industries.....	6.4	6.7	6.3	5.9	5.7	6.0	6.4	5.5
Rubber industries.....	5.4	5.8	6.5	6.8	6.9	6.7	8.0	6.5
Textile industries.....	6.2	5.9	5.6	4.6	3.4	3.7	4.0	2.6
Wood industries.....	6.3	5.8	3.8	4.0	2.9	6.1	5.9	0.4
Paper, allied industries and forestry.....	14.2	15.8	13.3	12.4	7.9	6.9	8.7	5.0
Printing, publishing and allied industries.....	7.6	9.2	9.4	8.3	8.2	9.3	8.5	7.6
Primary metal industries.....	10.8	12.6	13.9	11.8	8.8	10.4	8.9	7.6
Metal fabricating industries (except machinery and transportation equipment).....	5.4	5.8	6.1	6.0	5.7	5.1	5.9	5.6
Machinery industries (except electrical machinery).....	7.9	8.4	7.2	6.9	6.1	6.5	7.0	4.8
Transportation equipment industries.....	9.2	7.3	6.3	4.2	4.5	5.0	5.2	1.9
Electrical products industries.....	5.6	6.1	6.4	6.1	4.5	4.3	5.0	3.4
Non-metallic mineral products industries.....	8.8	10.0	10.8	10.9	6.9	7.4	7.0	5.1
Petroleum and coal products industries.....	7.3	7.7	8.0	8.9	9.2	9.4	8.6	9.3
Chemical and chemical products industries.....	10.1	10.9	11.1	10.2	8.9	9.6	8.9	7.8
Other manufacturing industries.....	7.3	7.3	6.2	9.4	8.8	8.4	8.3	7.1
<b>All Manufacturing Industries.....</b>	<b>8.1</b>	<b>8.4</b>	<b>8.0</b>	<b>7.4</b>	<b>6.3</b>	<b>6.6</b>	<b>6.8</b>	<b>5.1</b>

### Subsection 2.—Census of Manufactures Data by Industry

Results of the Census of Manufactures are published industry by industry as they become available. Although statistics for the 1970 Census were appearing as this Chapter was being prepared (January 1972), the Census of 1969 was the latest for which all industries had been issued. Table 5 shows summary statistics for 1961-69 and Tables 6 and 7 show selected results of the 1969 Census for industry groups and individual industries compared with figures for 1968. To help visualize some of the changes that took place in individual manufacturing industries in 1969, Table 8 shows the largest increases or decreases in numbers of employees. It should be noted that data shown for the 1969 Census are subject to revision.

### 5.—Summary Statistics of Manufactures, 1961-69

	MANUFACTURING ACTIVITY							
Year	Estab- lish- ments	Production and Related Workers			Cost of Fuel and Elec- tricity <sup>1</sup>	Cost of Materials and Supplies Used	Value of Shipments of Goods of Own Manu- facture	Value Added
		Number	Man- Hours Paid	Wages				
	No.		'000	\$'000	\$'000	\$'000	\$'000	\$'000
1961.....	33,357	939,413	1,968,163	3,532,943	516,409	12,579,798	23,438,956	10,434,832
1962.....	33,414	974,376	2,071,376	3,834,514	540,447	13,974,877	25,790,087	11,429,644
1963.....	33,119	1,003,566	2,137,977	4,095,916	564,387	15,337,534	28,014,888	12,272,734
1964.....	33,630	1,057,502	2,265,188	4,513,633	615,108	16,928,476	30,856,099	13,535,991
1965.....	33,310	1,115,892	2,384,002	5,012,345	675,641	18,622,213	33,889,425	14,927,764
1966.....	33,377	1,172,943	2,498,012	5,575,206	731,726	20,642,695	37,303,455	16,351,740
1967.....	33,267	1,168,651	2,478,916	5,869,085	759,780	21,371,785	38,955,389	17,005,696
1968.....	32,643	1,160,226	2,458,791	6,278,429	808,764	23,090,970	42,061,555	18,332,204
1969 <sup>P</sup> .....	32,676	1,189,835	2,515,929	6,921,257	860,480	25,381,414	45,932,907	20,131,436
TOTAL ACTIVITY								
	Estab- lish- ments	Working Owners and Partners		Total Employees <sup>2</sup>		Total Cost of Materials and Supplies Used and Goods Purchased for Resale <sup>3</sup>	Total Operational Revenue <sup>4</sup>	Total Value Added <sup>5</sup>
		Number	With- drawals	Number	Salaries and Wages			
	No.		\$'000		\$'000	\$'000	\$'000	\$'000
1961.....	33,357	16,989	57,980	1,352,605	5,701,651	14,564,247	25,895,611	10,931,561
1962.....	33,414	17,228	60,744	1,389,516	6,096,174	16,118,144	28,473,319	11,986,666
1963.....	33,119	16,030	59,426	1,425,440	6,495,289	17,558,196	30,823,107	12,875,073
1964.....	33,630	15,747	60,098	1,491,257	7,080,939	19,467,899	34,071,582	14,247,184
1965.....	33,310	14,620	59,457	1,570,299	7,822,925	21,563,010	37,638,412	15,785,311
1966.....	33,377	13,894	60,076	1,646,024	8,695,890	24,195,610	41,722,527	17,260,256
1967.....	33,267	13,377	59,187	1,652,827	9,254,190	25,546,764	44,143,808	18,049,639
1968.....	32,643	12,084	58,798	1,642,352	9,905,504	27,546,942	47,646,657	19,483,614
1969 <sup>P</sup> .....	32,676	11,432	58,399	1,673,319	10,831,306	30,330,644	52,111,400	21,452,613

<sup>1</sup> Cannot be reported separately for manufacturing and non-manufacturing activities but related substantially to manufacturing activity.

<sup>2</sup> Includes production and related workers, administrative and office employees, sales, distribution and other employees; excludes working owners and partners.

<sup>3</sup> Includes supplies used in both manufacturing and non-manufacturing activity.

<sup>4</sup> Includes shipments of goods of own manufacture, value of shipments of goods purchased for resale and other operational revenue.

<sup>5</sup> Value of total operational revenue less total cost of materials, supplies, fuel and electricity used and goods purchased for resale in the same condition; all adjusted for inventory changes where required.



## CENSUS OF MANUFACTURES DATA BY INDUSTRY

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Industry Group and Year	Estab-lish-ments	MANUFACTURING ACTIVITY					TOTAL ACTIVITY			
		Production and Related Workers			Cost of Fuel and Elec-tricity	Cost of Materials and Supplies Used	Value of Ship-ments of Goods of Own Manu-facture	Total Employees		
		Number	Man-Hours Paid	Wages				Number	Salaries and Wages	
					No.	'000	\$'000			\$'000
Food and beverage industries.....	1968	6,361	300,817	668,261	99,410	4,973,389	7,674,300	226,470	1,211,043	2,771,110
	1969	6,083	297,612	718,762	102,870	5,335,514	8,223,762	224,083	1,293,526	2,990,981
Tobacco products industries.....	1968	30	15,000	42,252	1,702	320,584	508,514	10,179	63,901	90,075
	1969	30	7,361	14,285	43,817	1,832	329,657	487,906	66,871	202,962
Rubber industries.....	1968	104	16,364	34,674	7,948	256,192	303,283	24,833	154,959	318,300
	1969	104	16,898	35,894	8,607	298,919	632,750	25,259	171,187	349,721
Leather industries.....	1968	513	27,017	100,033	2,927	396,242	331,750	31,741	131,879	204,455
	1969	521	26,530	104,299	2,999	205,059	412,275	31,192	137,529	211,387
Textile industries.....	1968	967	57,840	253,898	22,801	847,923	652,453	73,234	364,007	661,211
	1969	973	59,580	272,695	23,898	946,744	1,688,356	747,967	399,548	759,716
Knitting mills.....	1968	342	20,615	43,816	7,172	209,199	377,069	23,845	94,334	170,670
	1969	333	21,576	45,815	80,885	2,974	227,138	40,638	180,441	247,702
Clothing industries.....	1968	2,282	85,365	170,446	4,109	661,909	1,258,268	600,133	47,506	378,694
	1969	2,289	87,214	174,586	321,034	4,183	698,688	678,432	99,093	412,559
Wood industries.....	1968	3,477	77,692	165,147	396,392	33,842	1,052,390	896,061	90,309	909,723
	1969	3,501	79,667	168,512	37,409	1,209,301	1,966,340	948,345	92,546	438,040
Furniture and fixture industries.....	1968	2,300	35,117	154,488	6,525	312,168	660,281	386,805	43,171	251,580
	1969	2,313	38,098	176,593	171,794	340,389	728,987	349,112	44,248	303,050
Paper and allied industries.....	1968	635	192,309	584,041	189,853	1,753,820	3,422,015	117,223	826,084	1,508,019
	1969	640	91,617	200,021	651,269	1,920,639	3,833,815	172,557	926,270	1,746,165
Printing, publishing and allied industries.....	1968	3,600	48,145	97,533	280,793	9,440	448,168	916,397	555,237	1,031,913
	1969	3,652	47,799	97,631	9,937	487,440	1,370,351	84,656	577,021	1,492,877
Primary metal industries.....	1968	405	86,237	180,101	570,183	1,733,408	3,384,248	1,514,867	803,456	1,584,444
	1969	417	83,364	173,957	583,497	1,817,165	3,577,159	1,620,017	839,045	1,666,143
Metal fabricating industries (except ma- chinery and transportation equipment industries).....	1968	3,983	101,319	217,102	32,256	1,392,189	2,899,875	1,493,521	864,199	1,562,217
	1969	3,991	105,404	225,442	34,638	1,520,914	3,161,961	1,632,040	998,742	1,706,317
Machinery industries (except electrical ma- chinery).....	1968	795	44,357	209,355	11,470	735,139	1,480,375	737,399	520,131	1,006,918
	1969	830	48,749	322,366	12,769	883,236	1,731,071	818,258	602,853	1,162,551
Transportation equipment industries.....	1968	871	108,595	237,052	36,408	3,552,944	6,584,566	2,045,552	149,379	2,306,451
	1969	881	115,737	250,117	837,408	39,467	4,148,804	2,326,187	157,756	2,697,874
Electrical products industries.....	1968	689	76,410	161,102	401,171	18,189	1,220,287	1,173,800	124,215	1,298,389
	1969	726	80,688	168,129	445,507	19,398	1,395,000	2,607,480	124,988	1,429,604
Non-metallic mineral products industries.....	1968	1,260	37,795	84,228	223,174	67,968	1,204,177	686,041	51,670	710,614
	1969	1,286	38,109	84,203	246,199	71,838	1,347,420	738,939	51,890	765,233
Petroleum and coal products industries.....	1968	95	6,876	15,659	56,703	16,768	1,256,854	329,417	15,631	335,134
	1969	99	6,815	14,794	61,217	18,522	1,385,469	321,317	15,658	351,654
Chemical and chemical products industries.....	1968	1,124	38,848	82,021	232,389	98,946	1,026,692	1,285,018	77,027	1,367,680
	1969	1,136	39,750	85,043	259,024	96,931	1,285,018	1,381,299	78,418	1,492,307
Miscellaneous manufacturing industries.....	1968	2,810	53,830	112,923	245,526	12,511	563,272	693,522	392,990	761,188
	1969	2,871	56,412	118,247	276,880	14,115	617,793	777,496	441,373	853,111
Totals.....	1968	32,643	1,160,226	2,458,791	808,764	23,090,970	42,061,555	18,332,204	9,905,504	19,483,614
	1969	32,676	1,189,835	2,515,929	860,480	25,381,414	45,932,907	20,831,436	10,831,306	21,451,613



30	Brevetries.....	45	5,066	10,662	40,700	4,186	98,659	372,918	270,998	9,255	78,134	273,105
31	Rubber tire and tube manufacturers.....	13	7,480	16,570	56,472	4,965	191,186	372,006	181,348	9,412	72,884	183,210
32	Miscellaneous paper converters.....	213	10,333	22,154	55,112	3,425	198,091	365,946	168,226	15,560	96,346	188,007
33	Manufacturers of electric wire and cable.....	33	5,937	13,340	41,684	3,306	238,600	359,717	128,840	8,572	62,130	131,152
34	Manufacturers of pharmaceuticals and medicines.....	150	5,316	11,065	27,809	2,042	114,330	356,678	243,070	12,644	90,062	252,755
35	Tobacco products manufacturers.....	19	6,037	11,592	38,416	1,294	175,241	345,707	174,948	8,456	59,268	175,563
36	Distilleries.....	26	3,248	7,246	23,785	4,691	108,515	339,837	245,679	5,901	45,563	246,113
37	Fish products industry.....	350	16,363	33,917	54,175	5,952	213,655	338,632	116,811	19,159	71,056	135,888
38	Soft drink manufacturers.....	422	15,746	12,412	29,932	6,538	141,987	336,887	180,147	14,817	88,140	196,598
39	Sash, door and other millwork plants.....	918	11,520	24,563	59,049	3,389	191,415	329,136	138,949	14,840	84,402	146,492
40	Manufacturers of major appliances (electric and non-electric).....	30	8,462	17,648	49,758	2,970	180,793	311,147	135,624	11,971	75,919	142,988
<b>Totals, 40 Leading Industries.....</b>		<b>18,482</b>	<b>735,016</b>	<b>1,557,688</b>	<b>4,525,443</b>	<b>657,123</b>	<b>18,075,015</b>	<b>32,037,647</b>	<b>13,561,667</b>	<b>1,033,611</b>	<b>6,925,849</b>	<b>14,301,391</b>
<b>Totals, All Manufacturing Industries.....</b>		<b>32,676</b>	<b>1,189,835</b>	<b>2,515,929</b>	<b>6,921,257</b>	<b>860,480</b>	<b>25,381,414</b>	<b>45,932,907</b>	<b>20,131,436</b>	<b>1,673,319</b>	<b>10,831,306</b>	<b>21,452,613</b>

\*Value of production, rather than shipments of goods of own manufacture, is shown.



### 8.—Industries Showing Changes of 1,000 or More in Number of Employees, 1968 and 1969

(Ranked according to numerical increase or decrease)

Rank	Industry	Total Employees		Change 1968-69	
		1968	1969	Number	Percentage
	<b>Increases—</b>				
1	Communications equipment manufacturers.....	43,117	48,935	5,758	13.5
2	Miscellaneous machinery and equipment manufacturers..	47,813	52,585	4,772	10.0
3	Motor vehicle manufacturers.....	39,112	41,916	2,804	7.2
4	Manufacturers of electrical industrial equipment.....	22,634	25,425	2,791	12.3
5	Motor vehicle parts and accessories manufacturers.....	39,454	41,541	2,087	5.3
6	Miscellaneous vehicle manufacturers.....	3,940	5,988	2,048	52.0
7	Pulp and paper mills.....	73,498	75,427	1,929	2.6
8	Sawmills and planing mills.....	47,987	49,837	1,850	3.9
9	Truck body and trailer manufacturers.....	8,625	10,129	1,504	17.4
10	Synthetic textile mills.....	20,293	21,749	1,456	7.2
11	Manufacturers of miscellaneous electrical products.....	13,196	14,494	1,298	9.8
12	Office and store machinery manufacturers.....	12,733	14,005	1,272	10.0
13	Women's and children's clothing contractors.....	6,581	7,709	1,128	17.1
14	Plastics fabricators, <i>n.e.s.</i> .....	18,976	20,089	1,113	5.9
15	Manufacturers of household radio and television receivers	7,003	8,087	1,084	15.5
16	Railway rolling stock industry.....	5,048	6,128	1,080	21.4
17	Fabricated structural metal industry.....	17,150	18,203	1,054	6.1
	<b>Decreases—</b>				
1	Iron and steel mills.....	44,634	42,954	-1,680	-3.8
2	Smelting and refining.....	34,710	33,376	-1,334	-3.8
3	Slaughtering and meat processors.....	30,540	29,232 <sup>p</sup>	-1,308	-4.3

### Subsection 3.—Distribution of Manufacturing by Province and by Census Metropolitan Area

#### Distribution by Province

Central Canada accounted for about four out of every five dollars of all value added by manufacture in the manufacturing industries of Canada in both 1968 and 1969; Ontario's contribution in 1969 was 52.8 p.c. and Quebec's was 28.2 p.c., somewhat more than half as great. British Columbia was in third place, accounting for some 8.7 p.c. of value added by manufacture. The three Prairie Provinces together were almost as large a contributor, accounting for 6.8 p.c., and the Atlantic Provinces accounted for 3.5 p.c. One way of comparing the intensity of manufacturing activity in these regions is in terms of value added per capita of their population. The 1969 Canada average was \$956. Quebec and British Columbia were both close to this average, the per capita manufacturing value added in their manufacturing industries amounting to \$948 and \$844, respectively, but Ontario's average was much higher at \$1,427. The average for the Prairie Provinces was \$393 and that for the Atlantic Provinces, \$348.

9.—Summary Statistics of Manufactures, by Province, 1968 and 1969<sup>a</sup>

NOTE.—Based on the revised standard industrial classification and new establishment and total activity concepts.

Province or Territory and Year	Estab-lish-ments	MANUFACTURING ACTIVITY						TOTAL ACTIVITY		
		Production and Related Workers			Cost of Fuel and Elec-tricity	Cost of Materials and Supplies Used	Value of Ship-ments of Goods of Own Manu-facture	Total Employees		Total Value Added
		Number	Man-Hours Paid	Wages				Number	Salaries and Wages	
	No.	'000	\$'000	\$'000	\$'000	\$'000	\$'000		\$'000	\$'000
Newfoundland.....	1968 254 1969 259	9,609 9,941	21,009 21,461	42,964 48,895	9,520 11,582	99,169 116,351	197,464 242,378	11,908 12,302	57,582 65,326	92,583 120,531
Prince Edward Island.....	1968 138 1969 148	1,730 2,070	3,517 4,246	5,727 7,073	977 1,019	34,162 37,885	51,657 56,860	2,255 2,605	8,219 9,745	17,534 19,729
Nova Scotia.....	1968 852 1969 846	25,187 25,743	52,198 53,500	103,254 116,166	16,590 18,347	385,378 419,165	663,335 731,176	32,804 33,235	148,811 165,660	272,288 315,703
New Brunswick.....	1968 620 1969 628	21,521 22,046	46,103 47,000	93,856 104,246	24,461 26,490	374,338 414,000	633,577 708,033	28,139 28,966	133,380 148,061	249,012 283,786
Quebec.....	1968 10,513 1969 10,467	370,537 379,907	790,757 806,546	1,817,303 1,991,208	236,395 255,428	6,341,337 6,975,568	11,742,911 12,808,993	521,250 539,154	2,923,728 3,166,501	5,445,448 5,962,686
Ontario.....	1968 12,932 1969 12,976	563,777 574,680	1,197,631 1,220,208	3,238,023 3,549,699	372,847 387,197	11,932,954 13,068,606	21,842,620 23,951,499	810,724 823,344	5,171,178 5,644,207	10,516,406 11,524,299
Manitoba.....	1968 1,393 1969 1,381	34,153 35,803	71,571 74,936	161,942 182,761	23,860 25,340	657,609 725,407	1,118,813 1,230,014	48,100 49,435	251,869 277,378	463,577 507,050
Saskatchewan.....	1968 756 1969 748	10,348 9,889	21,807 20,915	56,447 58,687	11,000 12,162	311,760 332,720	489,210 530,442	15,654 15,267	89,955 95,081	179,420 194,953
Alberta.....	1968 1,822 1969 1,862	33,962 36,224	71,432 75,381	183,747 214,916	26,490 29,312	1,041,058 1,133,986	1,667,034 1,849,268	49,759 52,364	292,983 335,102	629,197 731,864
British Columbia.....	1968 3,321 1969 3,329	89,298 93,379	182,486 190,417	574,288 646,570	86,547 93,512	1,910,838 2,124,998	3,550,399 3,917,820	121,400 126,434	826,671 922,822	1,615,580 1,788,857
Yukon Territory.....	1968 18 1969 20	62 70	122 146	330 381	45 52	297 653	1,194 1,720	86 97	438 538	898 1,160
Northwest Territories.....	1968 14 1969 12	72 83	148 173	549 655	31 39	2,040 2,075	3,341 3,504	93 116	689 885	1,670 1,995
<b>Canada</b> .....	<b>1968</b> <b>32,642</b> <b>1969</b> <b>32,676</b>	<b>1,160,226</b> <b>1,189,835</b>	<b>2,458,291</b> <b>2,513,920</b>	<b>6,278,429</b> <b>6,921,257</b>	<b>808,764</b> <b>860,480</b>	<b>23,090,970</b> <b>25,331,414</b>	<b>42,061,555</b> <b>45,932,907</b>	<b>1,642,352</b> <b>1,673,319</b>	<b>9,905,504</b> <b>10,831,306</b>	<b>19,483,614</b> <b>21,452,613</b>





Machinery industries (except electrical machinery).....	2	1	1	1	1	1	1	1	1	1	1	1
Transportation equipment industries.....	6	1	1	1	1	1	1	1	1	1	1	1
Non-metallic mineral products industries.....	5	1	1	1	1	1	1	1	1	1	1	1
Chemical and chemical products industries.....	4	1	1	1	1	1	1	1	1	1	1	1
Miscellaneous manufacturing industries.....	4	1	1	1	1	1	1	1	1	1	1	1
Totals, Prince Edward Island.....	148	2,070	4,246	7,073	1,019	37,885	56,860	18,471	2,605	9,745	19,729	
Nova Scotia												
Food and beverage industries.....	274	8,114	17,025	28,016	4,428	148,354	229,831	78,381	11,080	44,100	88,796	
Tobacco products industries.....	...	...	...	...	...	...	...	...	...	...	...	—
Rubber industries.....	...	...	...	...	...	...	...	...	...	...	...	—
Leather industries.....	1	...	...	...	...	...	...	...	...	...	...	1
Textile industries.....	12	640	1,356	2,662	312	9,292	14,489	5,666	729	3,231	6,011	6
Knitting mills.....	6	1,168	2,258	3,392	170	7,292	15,038	8,086	1,299	4,219	8,065	1
Clothing industries.....	6	115	233	324	9	610	1,240	566	123	287	566	1
Wood industries.....	209	2,165	4,762	7,115	953	12,811	28,673	16,057	2,408	8,702	16,601	1
Furniture and fixture industries.....	40	216	452	749	58	1,537	2,551	1,254	253	1,008	1,304	1
Paper and allied industries.....	13	1,986	4,469	13,095	4,528	40,034	89,697	45,429	2,737	19,350	45,566	1
Printing, publishing and allied industries.....	74	800	1,631	4,131	218	4,035	18,230	14,016	1,402	7,577	14,141	1
Primary metal industries.....	6	1	...	...	...	...	...	...	...	...	...	1
Metal fabricating industries (except machinery and transportation equipment industries).....	50	1,017	2,119	5,437	383	11,043	20,560	8,957	1,376	7,635	11,036	1
Machinery industries (except electrical machinery).....	7	233	513	963	33	1,717	3,242	1,620	420	2,483	1,805	1
Transportation equipment industries.....	58	3,674	7,739	20,957	1,239	45,460	83,126	36,755	4,501	27,181	36,788	1
Electrical products industries.....	5	1,216	2,499	4,022	162	11,879	19,304	9,070	1,594	6,988	9,011	1
Non-metallic mineral products industries.....	38	674	1,476	3,496	1,225	7,660	19,082	10,484	1,876	5,029	10,717	1
Petroleum and coal products industries.....	2	1	...	...	...	...	...	...	...	...	...	1
Petroleum and chemical products industries.....	10	77	176	387	253	2,567	5,386	2,470	181	1,067	2,491	1
Chemical and chemical products industries.....	37	244	520	943	96	1,791	4,422	2,596	332	1,499	2,811	1
Miscellaneous manufacturing industries.....												
Totals, Nova Scotia.....	846	25,743	53,500	116,166	18,347	419,165	731,476	298,534	33,235	165,660	315,763	
New Brunswick												
Food and beverage industries.....	208	6,458	13,379	22,778	3,936	138,292	224,367	83,072	9,227	37,256	89,999	
Tobacco products industries.....	...	...	...	...	...	...	...	...	...	...	...	—
Rubber industries.....	...	...	...	...	...	...	...	...	...	...	...	—
Leather industries.....	4	1	...	...	...	...	...	...	...	...	...	1
Textile industries.....	8	415	823	1,233	129	2,139	4,648	2,319	496	1,544	2,325	1
Knitting mills.....	2	...	...	...	...	...	...	...	...	...	...	1
Clothing industries.....	5	259	597	738	13	400	1,379	965	287	953	996	1
Wood industries.....	160	3,096	6,810	11,760	1,490	33,465	60,700	26,049	3,516	14,515	27,269	1
Furniture and fixture industries.....	25	197	394	675	30	1,394	3,083	1,723	323	824	1,744	1
Paper and allied industries.....	18	4,353	9,939	31,319	16,074	106,022	189,068	67,200	5,313	39,640	70,793	1
Printing, publishing and allied industries.....	48	539	1,152	3,088	137	2,818	12,424	9,458	963	5,462	9,411	1
Primary metal industries.....	7	1	...	...	...	...	...	...	...	...	...	1
Metal fabricating industries (except machinery and transportation equipment industries).....	40	1,110	2,307	5,576	310	12,624	25,598	12,824	1,442	7,795	14,105	1

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10.—Summary Statistics of Manufactures, by Province and Industry Group, 1969<sup>a</sup>—continued

Province and Industry Group	Estab-lish-ments	MANUFACTURING ACTIVITY						TOTAL ACTIVITY			
		Production and Related Workers			Cost of Fuel and Elec-tricity	Cost of Materials and Supplies Used	Value of Ship-ments of Goods of Own Manu-facture	Value Added	Total Employees		Total Value Added
		Number	Man-Hours Paid	Wages					Number	Salaries and Wages	
	No.	'000	\$ '000	\$ '000	\$ '000	\$ '000	\$ '000	\$ '000	\$ '000	\$ '000	\$ '000
<b>New Brunswick—concluded</b>											
Machinery industries (except electrical machinery).....	7	1	1	1	1	1	1	1	1	1	1
Transportation equipment industries.....	12	1,882	3,771	10,238	235	20,857	36,039	2,466	14,736	16,473	16,473
Electrical products industries.....	5	1,824	3,123	5,375	244	16,978	32,267	1,831	7,328	13,122	13,122
Non-metallic mineral products industries.....	37	1,567	1,224	2,827	1,092	5,055	15,287	1,690	3,680	9,139	9,139
Petroleum and coal products industries.....	1	1	1	1	1	1	1	1	1	1	1
Chemical and chemical products industries.....	14	247	523	1,559	1,293	11,277	20,551	340	2,185	7,910	7,910
Miscellaneous manufacturing industries.....	37	449	901	1,885	117	3,617	9,310	586	2,943	5,441	5,441
<b>Totals, New Brunswick.....</b>	<b>625</b>	<b>22,046</b>	<b>47,000</b>	<b>104,246</b>	<b>26,490</b>	<b>414,000</b>	<b>708,933</b>	<b>28,966</b>	<b>148,061</b>	<b>283,786</b>	<b>283,786</b>
<b>Quebec</b>											
Food and beverage industries.....	1,798	37,454	81,436	190,696	28,550	1,493,844	2,286,054	61,491	351,129	811,106	811,106
Tobacco products industries.....	17	4,857	9,382	30,617	932	116,777	218,270	6,435	44,361	104,229	104,229
Rubber industries.....	26	4,727	9,882	23,593	2,188	67,110	150,585	8,057	38,872	83,267	83,267
Leather industries.....	298	13,366	27,224	49,448	969	94,725	196,083	101,844	15,559	64,765	103,688
Textile industries.....	435	31,698	68,111	143,004	12,338	505,397	874,681	376,793	40,712	209,765	382,292
Knitting mills.....	203	13,158	28,564	50,921	1,670	156,293	286,615	113,605	14,909	64,300	114,045
Clothing industries.....	1,552	96,573	112,590	207,933	2,605	478,456	885,609	410,084	63,698	263,380	412,496
Wood industries.....	1,090	18,227	41,587	79,833	7,578	195,183	363,029	168,556	21,276	96,150	172,340
Furniture and fixture industries.....	782	14,005	30,276	62,414	2,858	124,287	268,716	14,339	64,494	145,649	145,649
Paper and allied industries.....	208	32,996	72,959	231,374	80,668	666,024	1,317,366	43,886	327,246	586,133	586,133
Printing, publishing and allied industries.....	1,054	13,295	27,502	84,299	2,421	153,093	426,916	22,676	154,140	275,029	275,029
Primary metal industries.....	1,041	17,985	37,565	122,651	45,480	548,730	1,004,351	26,065	195,176	438,866	438,866
Metal fabricating industries (except machinery and transportation equipment industries).....	959	26,661	57,302	160,660	7,690	340,709	728,389	35,522	232,949	401,177	401,177
Machinery industries (except electrical machinery).....	133	7,867	17,171	46,597	1,899	108,432	229,251	14,945	103,948	146,585	146,585
Transportation equipment industries.....	162	24,382	51,522	158,012	6,914	600,403	1,035,074	36,258	262,712	445,554	445,554
Electrical products industries.....	164	21,440	44,883	124,722	5,072	358,612	719,997	35,948	238,994	443,728	443,728
Non-metallic mineral products industries.....	334	9,882	21,628	59,586	18,169	105,307	299,709	174,480	13,758	89,244	181,118
Petroleum and coal products industries.....	19	1,814	4,028	16,678	3,663	389,025	467,319	73,841	28,017	75,940	75,940
Chemical and chemical products industries.....	335	13,474	28,537	82,009	20,410	320,902	732,655	399,361	28,453	212,181	438,606
Miscellaneous manufacturing industries.....	814	16,046	34,457	70,261	3,345	152,054	342,324	187,146	104,718	200,838	200,838
<b>Totals, Quebec.....</b>	<b>10,467</b>	<b>379,907</b>	<b>806,546</b>	<b>1,991,208</b>	<b>255,428</b>	<b>6,975,568</b>	<b>12,806,993</b>	<b>5,672,740</b>	<b>3,166,501</b>	<b>5,962,686</b>	<b>5,962,686</b>

## Ontario

Food and beverage industries.....	2, 049	52, 151	110, 805	288, 545	41, 084	2, 056, 770	3, 310, 692	1, 243, 342	86, 161	542, 923	1, 307, 280
Tobacco products industries.....		2, 504	4, 903	13, 200	900	212, 880	269, 636	98, 372	30, 405	90, 733	20, 983
Rubber industries.....	55	11, 702	25, 005	77, 927	6, 185	220, 982	496, 920	239, 945	17, 262	123, 379	255, 206
Leather industries.....	201	11, 880	24, 287	49, 997	1, 873	99, 876	196, 050	55, 892	14, 080	66, 257	97, 624
Textile industries.....	391	24, 872	53, 398	126, 030	10, 574	402, 692	745, 779	341, 722	30, 884	172, 878	346, 728
Knitting mills.....	108	6, 676	13, 849	24, 616	1, 084	59, 054	111, 404	63, 649	7, 824	33, 500	63, 577
Clothing industries.....	526	20, 728	41, 574	78, 950	1, 070	145, 607	303, 846	157, 417	24, 127	104, 704	160, 350
Wood industries.....	775	15, 143	32, 375	73, 559	6, 092	177, 856	341, 279	158, 514	18, 159	96, 740	164, 211
Furniture and fixture industries.....	944	17, 289	36, 392	86, 308	3, 540	170, 334	365, 278	195, 966	21, 387	118, 000	199, 317
Paper and allied industries.....	291	34, 335	74, 944	229, 818	54, 282	657, 221	1, 298, 696	593, 656	45, 772	331, 863	614, 082
Printing, publishing and allied industries.....	1, 584	24, 192	49, 103	161, 108	5, 153	255, 884	775, 296	517, 684	43, 569	308, 544	528, 341
Primary metal industries.....	216	50, 536	105, 665	358, 106	70, 712	1, 958, 245	938, 959	938, 959	65, 532	502, 487	952, 825
Metal fabricating industries (except machinery and transportation equipment industries).....	2, 066	60, 613	129, 881	385, 117	21, 920	928, 119	1, 915, 200	985, 500	81, 600	562, 596	1, 019, 592
Machinery industries (except electrical machinery).....	498	34, 323	72, 374	234, 630	9, 088	665, 448	1, 295, 371	649, 403	55, 722	419, 046	907, 246
Transportation equipment industries.....	357	75, 216	164, 636	583, 278	29, 009	3, 318, 480	5, 030, 718	1, 700, 034	100, 034	827, 844	1, 955, 600
Electrical products industries.....	456	53, 306	111, 218	294, 843	13, 000	933, 485	1, 707, 682	831, 437	80, 143	508, 794	902, 378
Non-metallic mineral products industries.....	519	19, 763	44, 020	133, 699	38, 520	262, 925	670, 583	380, 858	26, 679	182, 745	393, 505
Petroleum and coal products industries.....	29	2, 145	5, 122	21, 636	6, 352	482, 193	587, 293	102, 462	8, 726	88, 282	101, 742
Chemical and chemical products industries.....	578	21, 724	46, 826	145, 395	57, 364	666, 538	1, 533, 789	816, 258	47, 189	323, 568	881, 741
Miscellaneous manufacturing industries.....	1, 320	35, 492	73, 821	182, 647	9, 395	428, 333	962, 844	534, 844	50, 089	299, 972	584, 221
<b>Totals, Ontario</b> .....	<b>12, 976</b>	<b>574, 680</b>	<b>1, 220, 208</b>	<b>3, 549, 699</b>	<b>387, 197</b>	<b>13, 098, 606</b>	<b>23, 851, 499</b>	<b>10, 635, 970</b>	<b>823, 344</b>	<b>5, 644, 207</b>	<b>11, 524, 239</b>

## Manitoba

Food and beverage industries.....	337	7, 290	14, 953	39, 100	5, 125	332, 490	453, 462	120, 046	11, 200	65, 384	126, 312
Tobacco products industries.....	...	...	...	...	...	...	...	...	...	...	...
Rubber industries.....	17	632	1, 223	2, 423	78	6, 011	10, 517	4, 479	736	3, 111	4, 516
Leather industries.....	43	554	1, 123	2, 050	108	8, 097	12, 775	4, 453	723	3, 057	4, 681
Textile industries.....	5	...	...	...	...	...	...	...	...	...	...
Knitting mills.....	191	5, 740	11, 856	19, 173	269	47, 342	83, 665	35, 950	6, 395	23, 785	35, 809
Clothing industries.....	101	1, 658	2, 907	8, 163	283	47, 401	20, 088	15, 146	1, 236	6, 000	10, 664
Furniture and fixture industries.....	109	1, 631	3, 271	7, 297	298	46, 169	31, 268	15, 128	1, 366	9, 283	15, 291
Paper and allied industries.....	194	1, 454	3, 058	8, 464	2, 708	28, 717	60, 082	23, 501	1, 869	11, 684	20, 737
Printing, publishing and allied industries.....	187	2, 397	4, 925	14, 006	458	63, 357	63, 423	43, 713	4, 125	23, 927	43, 577
Primary metal industries.....	16	2, 215	4, 664	14, 863	9, 356	22, 929	64, 922	32, 520	2, 084	13, 174	33, 123
Metal fabricating industries (except machinery and transportation equipment industries).....	132	3, 681	7, 800	22, 465	913	47, 565	95, 572	47, 043	4, 860	30, 755	52, 925
Machinery industries (except electrical machinery).....	46	2, 055	4, 427	10, 898	494	42, 454	69, 602	26, 325	3, 076	19, 115	28, 331
Transportation equipment industries.....	42	3, 142	6, 914	13, 923	752	34, 273	72, 780	37, 368	4, 488	29, 230	57, 400
Electrical products industries.....	24	1, 046	2, 138	4, 989	271	19, 811	33, 720	15, 316	1, 000	8, 905	15, 475
Non-metallic mineral products industries.....	45	1, 043	2, 354	6, 266	2, 320	14, 931	40, 883	23, 424	1, 461	9, 425	24, 574
Petroleum and coal products industries.....	6	...	...	...	...	...	...	...	...	...	...
Petroleum and chemical products industries.....	32	540	1, 135	3, 264	1, 433	18, 629	34, 717	15, 509	975	6, 175	16, 845
Miscellaneous manufacturing industries.....	103	890	1, 798	4, 016	252	5, 216	14, 714	9, 425	1, 206	6, 289	11, 998
<b>Totals, Manitoba</b> .....	<b>1, 381</b>	<b>35, 803</b>	<b>74, 936</b>	<b>182, 761</b>	<b>25, 340</b>	<b>725, 407</b>	<b>1, 230, 014</b>	<b>486, 057</b>	<b>49, 435</b>	<b>277, 378</b>	<b>507, 050</b>

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10.—Summary Statistics of Manufactures, by Province and Industry Group, 1969<sup>a</sup>—continued

Territory or Province or Industry Group	Estab-lish-ments	MANUFACTURING ACTIVITY						TOTAL ACTIVITY		
		Production and Related Workers			Cost of Fuel and Elec-tricity	Cost of Materials and Supplies Used	Value of Ship-ments of Goods and Manu-facture	Value Added	Total Employees	
		Number	Man-Hours Paid	Wages					Number	Salaries and Wages
	No.		'000	\$'000	\$'000	\$'000	\$'000	\$'000		\$'000
<b>Saskatchewan</b>										
Food and beverage industries.....	227	3,399	7,129	19,680	3,181	155,915	225,490	67,807	5,737	33,742
Rubber industries.....	...	...	...	...	...	...	...	...	1	1
Textile industries.....	8	77	153	297	30	642	1,263	766	115	539
Clothing industries.....	1	1	1	1	1	1	1	1	1	800
Wood industries.....	99	785	1,709	4,205	526	13,215	23,564	10,943	966	5,433
Furniture and fixture industries.....	33	66	139	263	15	666	1,347	672	78	322
Paper and allied industries.....	7	1	1	1	1	1	1	1	1	1
Printing, publishing and allied industries.....	121	990	2,001	5,325	228	5,518	21,407	15,680	1,641	8,882
Primary metal industries.....	3	1	1	1	1	1	1	1	1	1
Metal fabricating industries (except machinery and transportation equipment industries).....	81	827	1,703	4,484	235	9,861	20,554	10,305	1,232	7,229
Machinery industries (except electrical machinery).....	29	350	728	1,817	136	4,237	10,898	6,605	719	5,062
Transportation equipment industries.....	7	176	166	377	14	1,980	2,819	1,241	260	2,062
Electrical products industries.....	4	1	1	1	1	1	1	1	1	1
Non-metallic mineral products industries.....	50	698	1,501	3,876	1,402	12,342	28,351	14,592	958	5,681
Petroleum and coal products industries.....	10	544	1,143	4,365	939	76,248	97,077	21,112	738	9,130
Chemical and chemical products industries.....	11	115	239	815	694	3,225	9,285	3,878	209	1,481
Miscellaneous manufacturing industries.....	55	262	535	1,189	74	2,066	4,942	2,774	341	2,996
<b>Totals, Saskatchewan</b> .....	<b>748</b>	<b>9,889</b>	<b>29,915</b>	<b>58,687</b>	<b>12,162</b>	<b>332,720</b>	<b>530,442</b>	<b>186,893</b>	<b>15,267</b>	<b>95,081</b>
<b>Alberta</b>										
Food and beverage industries.....	461	8,333	17,467	49,020	5,941	534,781	708,486	172,374	13,436	82,205
Tobacco products industries.....	...	...	...	...	...	...	...	...	1	1
Rubber industries.....	4	1	1	1	1	1	1	1	1	1
Leather industries.....	10	130	260	575	24	1,557	2,831	1,266	188	911
Textile industries.....	22	483	1,054	2,506	204	8,086	16,398	8,260	626	3,556
Knitting mills.....	3	1	1	1	1	1	1	1	1	1
Clothing industries.....	23	1,661	3,477	6,032	81	12,662	26,266	15,406	2,021	9,254
Wood industries.....	250	4,240	8,949	21,562	2,104	62,739	110,578	50,501	5,145	29,109
Furniture and fixture industries.....	120	898	1,821	4,289	207	7,984	17,308	9,068	1,109	5,548
Paper and allied industries.....	20	1,045	2,282	6,784	1,901	27,227	54,597	24,439	1,482	10,410
Printing, publishing and allied industries.....	225	2,124	4,376	13,350	414	15,875	58,544	42,335	3,508	21,871
Primary metal industries.....	24	2,191	4,533	14,983	3,173	98,529	152,990	52,346	3,143	23,446
Metal fabricating industries (except machinery and transportation equipment industries).....	229	4,380	9,388	28,542	1,077	65,775	134,228	67,917	5,865	39,930
<b>Totals, Alberta</b> .....	<b>2,299</b>	<b>46,380</b>	<b>93,888</b>	<b>285,542</b>	<b>10,777</b>	<b>657,775</b>	<b>1,342,228</b>	<b>679,917</b>	<b>5,865</b>	<b>39,930</b>
<b>Totals, Saskatchewan and Alberta</b> .....	<b>2,299</b>	<b>46,380</b>	<b>93,888</b>	<b>285,542</b>	<b>10,777</b>	<b>657,775</b>	<b>1,342,228</b>	<b>679,917</b>	<b>5,865</b>	<b>39,930</b>

Machinery industries (except electrical machinery).....	43	1,063	2,250	6,807	316	15,232	32,311	17,155	2,127	15,841	20,355
Transportation equipment industries.....	69	2,509	5,045	13,971	387	39,365	64,583	26,378	3,293	20,332	29,903
Electrical products industries.....	17	516	1,077	2,456	885	16,242	28,004	12,132	3,709	5,301	12,215
Non-metallic mineral products industries.....	105	2,891	6,358	18,055	3,904	39,034	111,865	88,178	8,784	24,986	68,991
Petroleum and coal products industries.....	16	755	1,560	6,215	2,048	128,254	177,026	46,587	5,069	9,553	47,029
Chemical and chemical products industries.....	42	1,532	3,395	11,891	6,859	104,134	110,776	66,221	2,424	19,588	68,375
Miscellaneous manufacturing industries.....	175	1	1	1	1	1	1	1	1	1	1
<b>Totals, Alberta.....</b>	<b>1,862</b>	<b>36,324</b>	<b>76,381</b>	<b>214,916</b>	<b>29,312</b>	<b>1,133,986</b>	<b>1,849,268</b>	<b>702,810</b>	<b>52,364</b>	<b>335,102</b>	<b>731,864</b>
<b>British Columbia</b>											
Food and beverage industries.....	548	10,261	20,569	58,739	6,988	391,957	630,450	237,219	17,352	107,736	247,812
Tobacco products industries.....	...	...	...	...	...	...	...	...	1	1	1
Rubber industries.....	8	250	1,475	1,002	23	1,767	3,871	2,134	296	1,320	2,289
Leather industries.....	48	780	1,537	3,196	171	8,633	15,972	7,258	964	4,680	7,602
Textile industries.....	1	1	1	1	1	1	1	1	1	1	1
Knitting mills.....	6	1,874	3,701	7,057	107	11,025	25,007	13,893	2,117	8,997	14,122
Wood industries.....	52	34,552	69,266	238,732	18,009	701,082	1,193,787	503,949	39,283	282,602	505,510
Furniture and fixture industries.....	254	1,786	3,656	9,825	387	17,969	38,987	20,874	2,260	13,315	21,431
Paper and allied industries.....	54	12,646	26,132	105,805	41,064	347,219	719,556	329,609	17,312	155,419	328,571
Printing, publishing and allied industries.....	321	3,096	6,159	22,715	753	29,139	104,383	74,704	6,037	43,014	75,859
Primary metal industries.....	39	6,020	12,608	44,870	6,199	115,500	251,605	130,995	8,134	64,352	134,627
Metal fabricating industries (except machinery and transportation equipment industries).....	415	6,715	14,080	48,090	2,010	100,986	213,563	112,310	9,023	67,210	117,254
Machinery industries (except electrical machinery).....	65	2,688	5,575	19,930	758	43,682	90,556	48,093	4,335	34,422	49,806
Transportation equipment industries.....	161	4,566	9,699	33,049	823	86,630	154,313	68,908	6,088	46,022	72,945
Electrical products industries.....	50	1,354	2,762	8,115	376	31,632	57,690	28,241	2,626	17,721	28,698
Non-metallic mineral products industries.....	136	2,281	4,762	16,800	4,684	36,704	94,463	53,195	3,253	24,529	57,724
Petroleum and coal products industries.....	14	571	1,247	5,652	3,549	135,120	167,309	28,020	8,946	9,271	29,303
Chemical and chemical products industries.....	102	1,595	3,270	10,683	7,026	48,747	117,483	58,294	3,095	21,933	61,286
Miscellaneous manufacturing industries.....	316	1,944	3,968	10,806	536	14,740	37,917	23,521	2,703	16,109	29,986
<b>Totals, British Columbia.....</b>	<b>3,329</b>	<b>93,379</b>	<b>190,417</b>	<b>646,570</b>	<b>93,512</b>	<b>2,124,998</b>	<b>3,917,820</b>	<b>1,745,128</b>	<b>126,434</b>	<b>922,822</b>	<b>1,788,837</b>
<b>Yukon and Northwest Territories</b>											
Food and beverage industries.....	5	12	26	58	16	183	446	241	27	135	271
Clothing industries.....	1	1	1	1	1	1	1	1	1	1	1
Wood industries.....	11	45	94	238	35	182	715	584	53	296	592
Furniture and fixture industries.....	1	1	1	1	1	1	1	1	1	1	1
Printing, publishing and allied industries.....	5	1	1	1	1	1	1	1	1	1	1
Metal fabricating industries (except machinery and transportation equipment industries).....	3	1	1	1	1	1	1	1	1	1	1
Non-metallic mineral products industries.....	2	1	1	1	1	1	1	1	1	1	1
Petroleum and coal products industries.....	1	1	1	1	1	1	1	1	1	1	1
Chemical and chemical products industries.....	3	1	1	1	1	1	1	1	1	1	1
<b>Totals, Yukon and Northwest Territories.....</b>	<b>32</b>	<b>153</b>	<b>319</b>	<b>1,036</b>	<b>91</b>	<b>2,728</b>	<b>5,224</b>	<b>2,467</b>	<b>213</b>	<b>1,423</b>	<b>3,155</b>

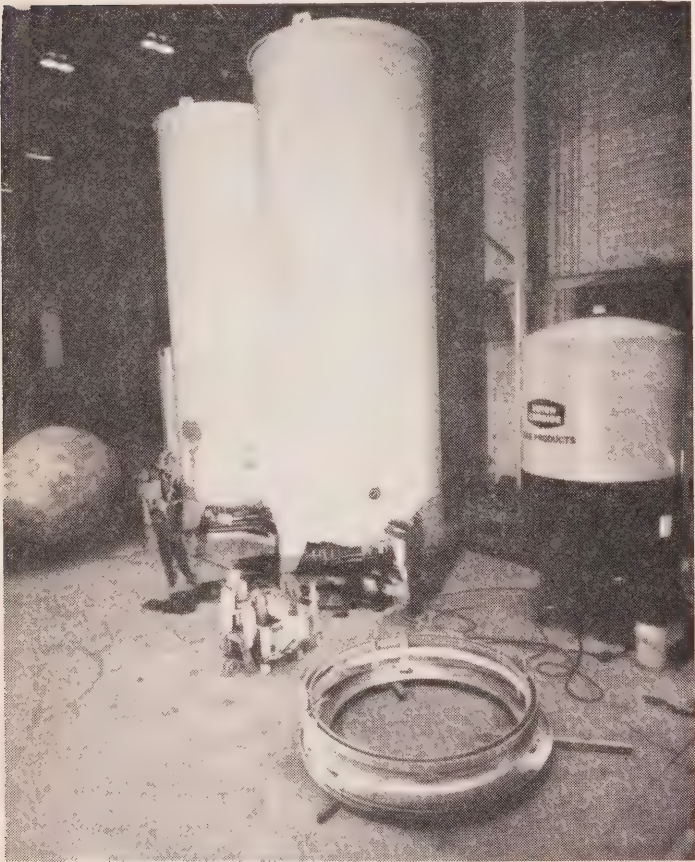
1 Confidential.

Distribution by Metropolitan Area

Table 11 shows the latest annual Census of Manufactures (1967 and 1968) data for 18 Census Metropolitan Areas for which information can be published. These exclude employees and activity of head offices, sales offices and auxiliary units which are included in manufacturing industry totals for Canada and the provinces given in Subsection 2.

Monthly surveys of employment afford a basis for estimates of the number of employees in the manufacturing industries in four metropolitan areas for periods later than the Census of Manufactures. The following are figures for 1969 and 1970:—

Metropolitan Area	Employees in Manufacturing Industries	
	1969	1970
	Average	Average
Montreal.....	300,500	296,100
Toronto.....	322,300	316,700
Winnipeg.....	41,800	40,800
Vancouver.....	70,300	68,100



An alloy known as 9% Ni Steel has been found to be an ideal metal for the construction of cryogenic tanks now used in a wide range of chemical and industrial applications for storing large quantities of liquid oxygen, nitrogen and other gases, for which they must remain completely air-tight during their useful life.



11.—Summary Statistics of Manufactures, by Census Metropolitan Area, 1967 and 1968<sup>a</sup>

Census Metropolitan Area and Year	Estab-lish-ments	MANUFACTURING ACTIVITY						TOTAL ACTIVITY		
		Production and Related Workers			Cost of Fuel and Elec-tricity	Cost of Materials and Supplies Used	Value of Ship-ments of Goods of Own Manu-facture	Value Added	Total Employees	
		Number	Man-Hours Paid	Wages					Number	Salaries and Wages
	No.	'000	'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Calgary, Alta.....	1967 470	9 539	19 962	50 805	5 721	289 494	465 898	177 928	13 772	77 664
.....	1968 404	9 550	19 932	53 781	5 761	299 402	477 270	177 091	13 878	83 248
Edmonton, Alta.....	1967 560	13 724	29 191	70 843	8 817	367 763	617 733	177 091	19 550	108 507
.....	1968 575	13 589	28 523	74 895	9 264	384 464	648 462	251 337	19 257	113 674
Halifax, N.S.....	1967 139	5 231	11 136	24 253	2 148	117 464	204 297	85 382	7 547	38 153
.....	1968 130	5 320	11 155	26 179	2 296	131 223	222 961	90 328	7 650	40 339
Hamilton, Ont.....	1967 707	52 784	110 864	310 337	42 733	898 592	1 850 006	918 412	69 425	432 591
.....	1968 684	51 441	108 486	320 881	43 294	927 408	1 839 083	977 124	67 133	446 429
Kitchener, Ont.....	1967 521	31 723	66 673	148 049	9 825	421 075	817 549	386 114	41 066	211 701
.....	1968 502	31 406	66 930	159 256	10 153	452 663	898 257	437 218	41 369	229 541
London, Ont.....	1967 324	15 374	32 037	76 517	5 513	272 642	544 317	265 478	22 209	122 875
.....	1968 325	14 490	30 459	77 270	5 681	273 328	556 240	278 428	21 225	126 537
Montreal, Que.....	1967 5 505	197 675	418 105	911 536	56 874	3 190 780	5 911 465	2 670 475	275 245	1 452 174
.....	1968 5 440	196 889	417 331	984 994	59 749	3 397 837	6 309 991	2 881 758	274 062	1 559 408
Ottawa, Ont.....	1967 350	12 531	26 801	68 955	14 233	183 150	389 407	190 106	18 191	111 389
.....	1968 355	12 364	26 201	68 740	9 918	234 127	458 297	216 518	23 697	114 413
Quebec, Que.....	1967 541	16 421	34 176	77 270	9 902	234 629	459 245	212 480	22 052	112 820
.....	1968 541	16 421	34 176	77 270	9 902	234 629	459 245	212 480	22 052	112 820
Regina, Sask.....	1967 137	2 637	5 558	14 191	1 675	91 353	140 863	48 604	4 160	23 166
.....	1968 130	2 481	5 153	14 011	1 706	88 722	140 926	49 472	3 909	22 788
Saint John, N.B.....	1967 96	4 933	10 878	24 880	5 949	133 991	221 947	81 785	6 663	34 643
.....	1968 96	4 836	10 238	26 191	6 067	137 698	220 627	85 979	6 446	36 064
St. John's, Nfld.....	1967 83	1 931	4 226	7 756	1 220	23 263	48 449	25 261	2 893	11 865
.....	1968 80	1 867	4 072	7 756	1 252	22 629	55 968	27 133	2 688	12 743
Saskatoon, Sask.....	1967 143	3 055	6 550	15 744	2 132	98 418	145 218	49 106	4 451	23 988
.....	1968 144	3 093	6 314	16 282	2 210	98 418	151 218	50 165	4 423	25 008
Toronto, Ont.....	1967 5 710	206 327	426 350	1 062 215	69 791	4 045 112	7 331 150	3 241 057	297 979	1 719 872
.....	1968 5 730	204 270	420 940	1 131 691	75 460	4 423 770	7 941 626	3 471 275	295 748	1 804 886
Vancouver, B.C.....	1967 1 840	45 259	92 009	250 665	21 878	918 274	1 853 258	715 202	61 766	374 825
.....	1968 1 846	45 401	92 408	281 151	23 270	993 477	1 784 969	776 079	62 011	374 761
Victoria, B.C.....	1967 213	3 793	7 762	26 948	1 251	61 326	122 570	59 489	5 915	31 148
.....	1968 209	3 426	7 762	26 948	1 251	61 326	122 570	59 489	5 915	31 148
Windsor, Ont.....	1967 402	26 433	58 295	175 191	12 259	793 454	1 411 270	607 769	34 722	243 006
.....	1968 398	26 057	57 707	200 142	12 706	925 002	1 526 654	635 654	34 211	277 326
Winnipeg, Man.....	1967 1 022	28 611	59 989	125 123	10 065	536 405	1 896 528	382 108	39 635	191 222
.....	1968 989	28 170	56 861	131 933	10 384	556 877	926 995	395 258	38 804	200 360

### Subsection 4.—Size of Manufacturing Establishments Based on Employment and Shipments

Almost one third of the manufacturing establishments in Canada have fewer than five persons employed, including any working owners. However, these establishments, because of their small average size, account for only about one seventieth of the working force of the manufacturing industries. The average size of a manufacturing establishment, in terms of persons employed, is somewhat over 50 persons but more than one half of the total work force of the manufacturing industries is in establishments employing 200 or more persons.

#### 12.—Establishments and Employment in the Manufacturing Industries, by Number Employed per Establishment, 1949, 1955, 1961 and 1968

Size Group <sup>1</sup>	Estab- lishments	Em- ployees	Working Owners and Partners	Pro- portion of Total Em- ployment <sup>1</sup>	Estab- lishments	Em- ployees	Working Owners and Partners	Pro- portion of Total Em- ployment <sup>1</sup>
	1949				1955 <sup>2</sup>			
	No.	No.		p.c.	No.	No.		p.c.
Under 5 employed.....	16,647	34,865		3.0	17,602	36,340		2.8
5 to 14 " ...	9,133	75,482		6.4	9,864	81,471		6.3
15 to 49 " ...	5,967	159,012		13.6	6,340	169,575		13.1
50 to 99 " ...	1,905	132,069		11.3	2,082	144,411		11.1
100 to 199 " ...	1,114	156,084		13.3	1,175	163,091		12.6
200 to 499 " ...	694	213,130		18.2	739	227,667		17.5
500 to 999 " ...					243	167,720		12.9
1,000 to 1,499 " ...	332	391,455		33.4	76	91,840		7.1
1,500 or more " ...					61	200,413		15.4
Head offices.....	—	9,110		0.8	—	15,933		1.2
<b>Totals.....</b>	<b>35,792</b>	<b>1,171,207</b>		<b>100.0</b>	<b>38,182</b>	<b>1,298,461</b>		<b>100.0</b>
	1961				1968			
	No.	No.	No.	p.c.	No.	No.	No.	p.c.
Under 5 employed.....	12,352	16,846	10,675	2.0	10,302	15,422	8,277	1.4
5 to 14 " ...	9,134	71,207	5,150	5.6	9,003	72,611	3,212	4.6
15 to 49 " ...	6,829	184,550	1,055	13.6	7,398	201,376	531	12.2
50 to 99 " ...	2,445	169,319	88	12.4	2,724	190,333	35	11.5
100 to 199 " ...	1,377	190,540	17	13.9	1,693	238,020	26	14.4
200 to 499 " ...	869	261,628	4	19.1	1,081	329,762	3	19.9
500 to 999 " ...	243	169,392	—	12.3	289	198,723	—	12.0
1,000 to 1,499 " ...	55	68,743	—	5.0	84	102,745	—	6.2
1,500 or more " ...	53	165,577	—	12.1	69	219,465	—	13.3
Head offices <sup>3</sup> .....	—	54,733	—	4.0	—	73,895	—	4.5
<b>Totals.....</b>	<b>33,357</b>	<b>1,352,535</b>	<b>16,989</b>	<b>100.0</b>	<b>32,643</b>	<b>1,642,352</b>	<b>12,084</b>	<b>100.0</b>

<sup>1</sup> Includes working owners and partners.<sup>2</sup> Newfoundland included from 1955.<sup>3</sup> Not comparable with years prior to 1961 when coverage of head offices was incomplete.

**13.—Establishments in the Manufacturing Industries classified by Number Employed and by Province, 1968**

Province or Territory	Number Employed									Total
	Under 5	5 to 14	15 to 49	50 to 99	100 to 199	200 to 499	500 to 999	1,000 to 1,499	1,500 or Over	
	No.	No.	No.	No.	No.	No.	No.	No.	No.	
Newfoundland.....	94	53	54	26	25	—	2 <sup>1</sup>	—	—	254
Prince Edward Island....	62	—	72	—	4	—	—	—	—	138
Nova Scotia.....	284	251	191	64	30	23	9	—	—	852
New Brunswick.....	194	167	147	50	34	19	6	3	—	620
Quebec.....	3,361	2,732	2,504	904	539	333	94	26	20	10,513
Ontario.....	3,608	3,546	3,025	1,186	783	552	148	42	42	12,932
Manitoba.....	483	382	304	118	69	27	10	—	—	1,393
Saskatchewan.....	303	246	139	36	22	10	—	—	—	756
Alberta.....	653	590	356	120	66	30	7	—	—	1,822
British Columbia.....	1,243	981	655	211	132	79	18	8	4	3,331
Yukon and Northwest Territories.....	17	—	15	—	—	—	—	—	—	32
<b>Canada.....</b>	<b>10,302</b>	<b>9,003</b>	<b>7,398</b>	<b>2,724</b>	<b>1,693</b>	<b>1,081</b>	<b>289</b>	<b>84</b>	<b>69</b>	<b>32,643</b>

<sup>1</sup> Published with permission of the firms affected.

**14.—Percentage of Manufacturing Establishments Accounted for by Employment Size Groups, 1968**

Province or Region	Establishments with Total Employed of—						All Size Groups
	Under 5	5 to 14	15 to 49	50 to 99	100 to 199	200 or Over	
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	
Atlantic Provinces.....	34.0	27.5	22.2	7.9	4.3	4.0	100.0
Quebec.....	32.0	26.0	23.8	8.6	5.1	4.5	100.0
Ontario.....	27.9	27.4	23.4	9.2	6.1	6.1	100.0
Prairie Provinces.....	36.2	30.7	20.1	6.9	4.0	2.1	100.0
British Columbia, Yukon Territory and Northwest Territories.....	37.5	29.6	19.5	6.3	3.9	3.2	100.0
<b>Canada.....</b>	<b>31.5</b>	<b>27.6</b>	<b>22.7</b>	<b>8.3</b>	<b>5.2</b>	<b>4.7</b>	<b>100.0</b>



Bulk and packaged delicatessen foods are prepared in this Manitoba custom kitchen for distribution to grocery chains, department stores, hospitals and restaurants throughout the province and to points across the country.



# 15.—Number of Establishments in Manufacturing Industries, by Industry Group and Employment Size Group, 1968

Industry Group	Establishments with Total Employed of—									Total
	Under 5	5 to 14	15 to 49	50 to 99	100 to 199	200 to 499	500 to 999	1,000 to 1,499	1,500 or Over	
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Food and beverage industries.....	2,040	2,104	1,288	436	273	171	38	←11→		6,361
Tobacco products industries.....	←12→				←18→					30
Rubber industries.....	11	19	23	11	9	18	8	←5→		104
Leather industries.....	89	97	144	←142→		←41→		—	—	513
Textile industries.....	210	245	255	91	73	70	←20→		3	967
Knitting mills.....	45	52	106	69	41	←29→		—	—	342
Clothing industries.....	←923→		812	319	158	←70→		—		2,282
Wood industries.....	1,431	866	725	271	117	55	←12→			3,477
Furniture and fixture industries.....	1,205	501	364	130	71	26	3	—	—	2,300
Paper and allied industries	46	←256→		100	←212→			14	7	635
Printing, publishing and allied industries.....	1,529	1,145	609	172	78	←67→				3,600
Primary metal industries.	43	70	112	51	←86→		24	←19→		405
Metal fabricating industries (except machinery and transportation equipment industries)...	1,086	1,273	1,024	290	183	104	19	←4→		3,983
Machinery industries (except electrical machinery).....	112	195	245	←176→		←59→		←8→		795
Transportation equipment industries.....	211	←399→		82	70	55	26	8	20	871
Electrical products industries.....	83	125	162	←183→		←117→		8	11	689
Non-metallic mineral products industries.....	285	415	350	95	71	35	←9→		—	1,260
Petroleum and coal products industries.....	12	21	22	10	16	10	←4→		—	95
Chemical and chemical products industries.....	256	308	276	116	90	56	16	←6→		1,124
Miscellaneous manufacturing industries.....	1,192	760	←714→		89	43	8	←4→		2,810
<b>All Manufacturing Industries.....</b>	<b>10,302</b>	<b>9,003</b>	<b>7,398</b>	<b>2,724</b>	<b>1,693</b>	<b>1,081</b>	<b>289</b>	<b>84</b>	<b>69</b>	<b>32,643</b>

## Size Based on Shipments

The average size of a manufacturing establishment in terms of shipments of goods of own manufacture was \$1,288,532 in 1968, about one and three quarters times the average size in 1961. However, this average size is greatly affected by the large number of very small establishments which in fact account for only a minor share of over-all shipments. Establishments with \$1,000,000 or more shipments of goods of own manufacture in 1968

accounted for about one establishment in five, but these larger establishments were responsible for 88 p.c. of the total value of shipments of goods of own manufacture of the manufacturing industries.

**16.—Establishments and Shipments in the Manufacturing Industries, by Shipments per Establishment, 1961 and 1968**

Value Group	Estab- lish- ments	Value of Ship- ments of Goods of Own Manu- facture	Average per Estab- lish- ment	Pro- portion of Total Ship- ments	Estab- lish- ments	Value of Ship- ments of Goods of Own Manu- facture	Average per Estab- lish- ment	Pro- portion of Total Ship- ments
	1961				1968			
	No.	\$'000	\$'000	p.c.	No.	\$'000	\$'000	p.c.
Under \$25,000.....	9,245	106,779	12	0.5	5,462	71,540	13	0.2
\$25,000 but under \$ 50,000	4,677	168,079	36	0.7	4,222	153,275	36	0.4
50,000 " " 100,000	4,562	328,307	72	1.4	4,295	308,751	72	0.7
100,000 " " 200,000	4,260	610,675	143	2.6	4,224	605,528	143	1.4
200,000 " " 500,000	4,555	1,462,027	321	6.2	5,404	1,738,941	322	4.1
500,000 " " 1,000,000	2,400	1,689,457	704	7.2	3,202	2,285,342	714	5.4
1,000,000 " " 5,000,000	2,875	6,123,965	2,130	26.1	4,303	9,415,470	2,188	22.4
5,000,000 or over.....	783	12,949,667	16,539	55.3	1,531	27,482,708	17,951	65.3
<b>Totals and Averages....</b>	<b>33,357</b>	<b>23,438,956</b>	<b>703</b>	<b>100.0</b>	<b>32,643</b>	<b>42,061,555</b>	<b>1,289</b>	<b>100.0</b>

**17.—Establishments in the Manufacturing Industries classified by Value of Shipments of Goods of Own Manufacture and by Province, 1968**

Province or Territory	Up to \$24,999	\$25,000 to \$99,999	\$100,000 to \$499,999	\$500,000 to \$999,999	\$1,000,000 to \$4,999,999	\$5,000,000 or Over	Total
	No.	No.	No.	No.	No.	No.	No.
Newfoundland.....	78	45	61	30	54		254
Prince Edward Island.....	40	34	39	11			138
Nova Scotia.....	203	228	243	74	82	22	852
New Brunswick.....	138	156	161	61	84	20	620
Quebec.....	1,759	2,707	3,201	1,112	1,296	438	10,513
Ontario.....	1,774	3,162	3,903	1,328	1,996	769	12,932
Manitoba.....	295	350	393	135	180	40	1,393
Saskatchewan.....	164	256	197	53	69	17	756
Alberta.....	314	574	543	146	178	67	1,822
British Columbia, Yukon Territory and Northwest Territories.....	697	1,005	887	252	368	154	3,363
<b>Canada.....</b>	<b>5,462</b>	<b>8,517</b>	<b>9,628</b>	<b>3,202</b>	<b>4,303</b>	<b>1,531</b>	<b>32,643</b>

**Subsection 5.—Exports of Manufactured Goods**

Export statistics are not broken down into manufactured goods and other goods but the categories "fabricated materials" and "end products" give some indication of the degree of manufacture of such exports and the total for the two can be used as a substitute for manufactured exports. Because exports are not necessarily made by the manufacturer and because of valuation problems, the resulting series are not wholly comparable with Census of Manufactures data on manufacturers' shipments of goods of own manufacture.

In the latter, for instance, work by smelters owned by mining companies is valued at an imputed charge to the mine, not at the value of the metal produced. The following figures show recent trends in exports of manufactures approximated in this way:—

Year	<i>Domestic Exports of—</i>		
	<i>Fabricated Materials</i>	<i>End Products</i>	<i>Total Manufactured Goods</i>
	\$'000,000	\$'000,000	\$'000,000
1961.....	2,916.4	706.4	3,622.9
1965.....	3,923.5	1,606.3	5,529.8
1966.....	4,217.0	2,455.1	6,672.1
1967.....	4,417.3	3,476.5	7,893.7
1968.....	5,027.9	4,702.4	9,730.4
1969.....	5,344.9	5,828.3	11,173.2
1970.....	6,083.4	6,082.8	12,166.3

An important reason for the rising level of exports in the end products category has been the Canada-United States Agreement on Automotive Products, which went into effect in 1965.

## Section 2. Trends in the Number of Manufacturing Establishments

It is interesting and perhaps surprising to realize that the number of manufacturing establishments in Canada has not been increasing in recent years. Most types of manufacturing activity have been on the up-trend and the ordinary citizen often reads of or sees new factories being constructed, so that it is natural to assume that all this industrial growth should indicate that more manufacturing establishments are in operation. The fact is, however, that there were almost 700 fewer manufacturing establishments\* in 1969 than in 1961, according to the annual Census of Manufactures. The situation is clearly not one of growth in the over-all number of factories, although the decline was only 2 p.c., for the reason that opposite trends in different industries almost offset each other. The net change is the result of forces acting upon the level of production and upon the average size of establishment within industries in a complex and widely varying fashion.

An examination of changes in numbers of establishments in various industries may, therefore, be of some interest. In a sense, of course, the number of establishments is one of the less important figures relating to the manufacturing industries. Because production and employment are heavily concentrated in a relatively small number of large establishments in most industries (see p. 764), changes in establishment numbers that reflect fluctuations in the number of small establishments often have little impact upon output or jobs. It is also true that technicalities involved in the methods of gathering or compiling statistics can have some effect on the number of establishments, particularly the number of very small establishments.

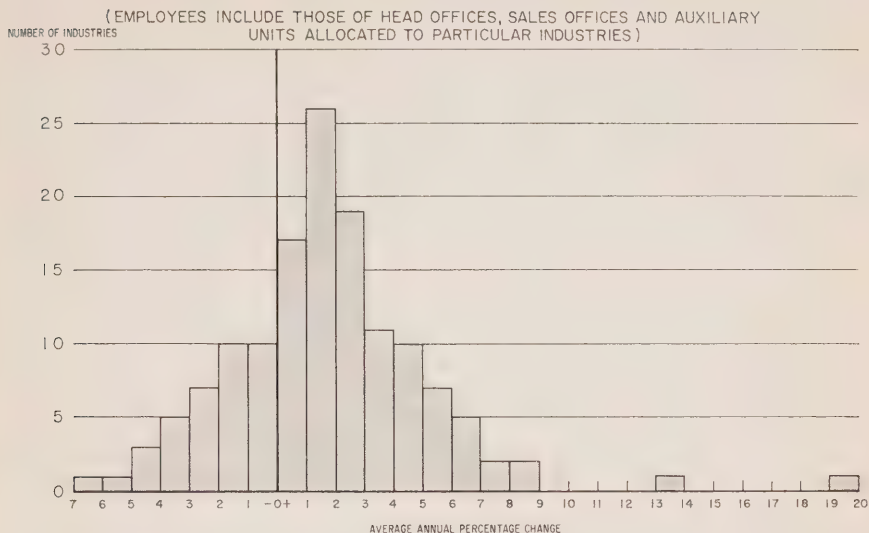
However, in other ways, the question of why there are more or fewer establishments in an industry has importance and special interest, if only as a symptom of other developments. A trend toward more establishments in an industry may point to opportunities for those interested in promoting the industrial growth of particular regions to attract new establishments to their areas. Likewise, rising or falling numbers of establishments in an industry often indicate increasing or more restricted opportunities for the individual seeking to own and operate his own manufacturing establishment as a small businessman.

Of wider interest, the number of establishments divided into the total employment, shipments, value added or another statistic of the industry affords a measure of the average size of establishment. Although this figure can be misleading if there has been merely a

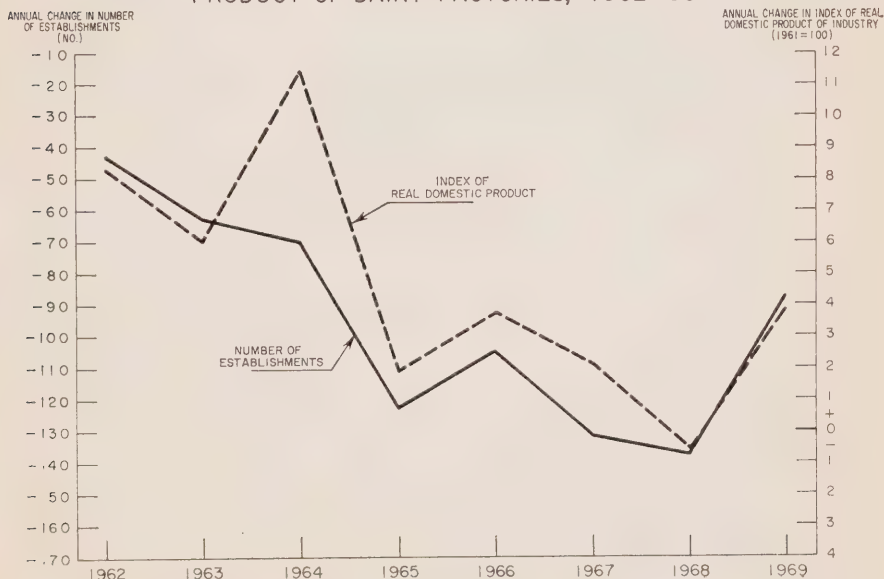
\* An "establishment" is a statistical reporting unit approximately equivalent in practice to a factory, plant or mill.



# NUMBER OF INDUSTRIES SHOWING SPECIFIED AVERAGE ANNUAL PERCENTAGE RATE OF CHANGE IN EMPLOYEES PER ESTABLISHMENT, 1961-69



## ANNUAL DECLINE IN NUMBER OF DAIRY FACTORY ESTABLISHMENTS COMPARED WITH ANNUAL INCREASE IN INDEX OF REAL DOMESTIC PRODUCT OF DAIRY FACTORIES,\* 1962-69



\* DATA ADJUSTED TO INCLUDE PROCESS CHEESE MANUFACTURERS.

change in the number of small establishments with no change in the representative size of large establishments which account for most of the production, changes in the simple average establishment size do often, in practice, point to trends in the economies of operating small or large establishments or to waves of "rationalization" in industries. These trends, or the possibility of their existence when so identified, can be explored in more detail by the use of other statistics.

There is no hard and fast logic to the growth of establishments in relation to growth in production. In some industries, establishments increase in years when production increases, and decrease when production decreases. In some industries characterized by large establishments with virtually no small establishments, there may be a tendency for the opening of new establishments to precede the growth of production. In still other industries, there may be a tendency for an increase in production in the year before—at least if sustained in the current year—to influence some small operators to enter the industry.

It is noticeable that, even in industries where the number of establishments is falling, the fall may be slowed down in years of expanding production. An example of this is the dairy factories. In the chart on p. 769 showing net changes in the number of dairy factories for the 1962-69 period in comparison with changes in the industry's index of real domestic product, it will be seen that although rationalization has been drastically reducing the number of plants, the shrinkage is less when production is higher.

By way of partial explanation of the effect of methods of gathering and compiling statistics, it is noted that in 1963 Statistics Canada began identifying new establishments with the help of the Unemployment Insurance Commission and continued to do so for the remainder of the period under discussion here (1961-69). There was an unusually large increase in establishment numbers in 1964 in many industries; more industries had a higher percentage change of establishment numbers in that year than in any other year of the 1961-69 period. However, establishment numbers tend to increase in years of increasing production and 1964 was also a year of high rate of increase in output. It is therefore difficult to determine to what extent the method of identifying new establishments affected the count, but it appears to have done so.

The Central Registers staff of Statistics Canada publishes a semi-annual report entitled *New Manufacturing Establishments in Canada* (Catalogue No. 31-002), which lists and gives counts of establishments entering or intending to enter manufacturing. These numbers of new establishments are not actually "births" for Census purposes since many never actually get into production. But, by certain indirect manipulations of these data and net changes in Census establishment numbers, it would be possible to make indirect estimates of "births" and "deaths" of manufacturing establishments in the manufacturing industries as a whole; however, it is the intention to move toward the issuance of actual birth and death statistics for the Census of Manufactures rather than calculate indirect approximations of this kind.

The net change in Census establishment numbers is the difference between births and deaths of establishments, after allowance for technicalities like reclassification of establishments that have changed their predominant activity and a minor amount of splitting or combining of reporting units for accounting reasons. In individual industries, it should be noted, the reclassification of establishments that have changed their product specialization sometimes has a significant impact on establishment numbers.

### Change Trends in Industry Groups

To quite an extent, the net decline in the over-all number of establishments is the result of special situations in two industry groups—the wood industries and the food and beverage industries. Of the 20 industry groups that make up the manufacturing division of the Standard Industrial Classification, only these two showed a decline of more than 40 establishments between 1961 and 1969.

Both, however, showed truly dramatic changes. In the wood industries, the number of establishments dropped by 1,740 or by approximately one third. In the food and beverage industries, the corresponding decrease was 1,652 establishments, or about one fifth.\*

If these two groups were left out of account, the remaining 18 would actually show a net increase of 2,704 establishments between 1961 and 1969, or 13.3 p.c. So it might perhaps be said that, except for two special cases, the number of manufacturing establishments increased from 1961 to 1969. However, even within the other industry groups there was a considerable variation from the small decreases of some groups through the moderate increases in others to very large increases in a few groups. In the machinery industries, the number of establishments increased by about one half over the period. In three groups—the electrical products industries, the metal fabricating industries and the transportation equipment industries—the increase was slightly more than one third.

Table 19 shows the establishment numbers in 1961 and 1969 in each of the 20 groups, ranked according to size of numerical change. The individual industry, or industries, making the largest contribution to the net change is noted where this seems worthy of mention.

Because the rate at which production is expanding or declining in an industry can have an effect on the number of establishments, Table 20 compares the average annual rate of change of establishment numbers, production and employees per establishment. The groups are ranked by the average annual rate of change of establishments, divided by the production index. (Production is measured by the index of real domestic product originating in an industry; this is an indicator of the level of net output, adjusted to remove the effect of price changes, in relation to a base period—1961.) Average annual rates of change in this Section are trend rates obtained by the method of least squares of logarithms, since comparing only the first and last year may reflect an undue influence from these particular years, especially in the case of production or employees. The employees include those working in separate head offices, sales offices and auxiliary units as well as in establishments, but the distortion in calculating average establishment size in this way is probably not appreciable.

The intention in dividing establishments by the production index is to show whether establishment numbers are rising or falling in relation to the level of production. Dividing the production index by the number of establishments and measuring the growth of this statistic would be possible but misleading; some might be tempted to interpret it as "productivity" per establishment, since it is usual to divide production indexes by employment to measure productivity per person employed. While the employment of more or less labour, together with other factors of production, directly results in the change in output, the change in the number of establishments, so often involving very small establishments, is more associated with changes in production than a direct cause of it. However, it will be seen from Table 20 that employees per establishment have been growing most rapidly in those industry groups where establishments have been falling most rapidly in relation to production. The relationship is not perfect, of course, because rates of change of labour productivity have varied; the examination of productivity changes, however, is not undertaken here.

It will also be seen that, except for apparent special cases at the top and bottom ends of the ranking, the rates of change of establishments divided by production show a marked "bunching" together. In four of the industry groups, establishments have declined in relation to output at the same average annual rate of 4.8 p.c. and the figures for a number of others are not greatly different.

Two of the four industry groups at the top of Table 20 are the same two responsible for the net decline in the over-all number of establishments—the wood industries and the food and beverage industries. They, in turn, reflect the particularly rapid "shakeout" of

\* Establishment numbers used in this Section represent minor revisions of the preliminary data used in the first Section of this Chapter.



small establishments in three industries—sawmills and planing mills, dairy factories, and bakeries. In the case of the transportation equipment industries, the main reason for the drop in establishment numbers in relation to production is the unusually high rate of expansion in production. This is chiefly a result of the Canada-United States Agreement on Automotive Products which came into effect in 1965 (see Chapter XXI). Although this agreement did lead to new establishments being set up, its most pronounced effect was the increase in the size of production runs in the industries associated with motor vehicle production.

A rapid rate of growth of production has enabled the chemical and chemical products industries, which rank fifth among industry groups in production, to gain fourth place in terms of the rate at which establishment numbers have been declining in relation to production. This, like the transportation equipment industries, is an industry sector where short production runs have traditionally been a problem.

The miscellaneous manufacturing industries reflect particularly rapid expansion of output in one industry and thus the effect of the changing "mix" of industries within the group—as do the industry groups generally. Plastics fabricators, the source of the greatest production growth, is characterized by much larger production units than, for example, dental laboratories.

The leather industries, at the other end of the table and of the ranking, also represent a special case. Production has been almost unchanged on a trend basis, declining at an average annual rate of 0.8 p.c.; the rate of change in total number of establishments was identical, -0.8 p.c. The result was virtually no change in establishments in relation to production; interestingly, there was also virtually no change in the number of employees per establishment. It should be noted, however, that there were diverse movements among the industries in the group.

Of course, all the industry groups may be considered to be special cases, in that special factors influence the rate of growth or decline of the establishments in them. In the machinery industries, for instance, there is a rough relationship between year-to-year changes in gross fixed capital formation in the form of machinery and equipment, after removal of the effect of price changes, and the net change in the number of establishments in the industry group.

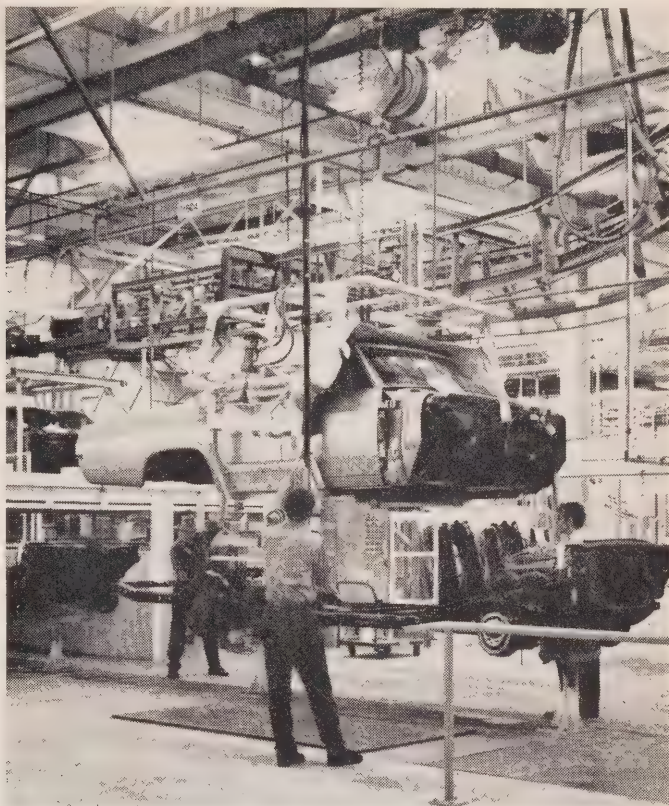
### Industries with More Establishments

An examination of the individual industries that have shown particularly large or small relative changes in establishment numbers will point up more specifically the sort of forces influencing the number of establishments.

Table 18 shows the 20 industries with the largest percentage increase in establishment numbers between 1961 and 1969. Four industries more than doubled the number of their establishments; in each, the main reason was the rapid growth of demand for the industry's product. The largest percentage increase in establishments still leaves *Miscellaneous vehicle manufacturers* with a small number of establishments. However, the industry's index of real domestic product for 1969 was 1,589.3; since the index is based on 1961 equalling 100, output was up almost sixteenfold. In fact, the make-up of the industry changed completely during the period because of the rise to popularity of the snowmobile.

In addition to this enormous effect of the recreational vehicle on the output of this industry, other recreational vehicles have had an impact on establishment numbers both in this industry and the second ranking industry in Table 18. "All terrain" vehicles in the form of off-road rubber-tired vehicles and hovercraft have led to new plants in the miscellaneous vehicle manufacturers industry; such products as mobile homes, travel trailers, tent trailers, camper bodies for trucks and boat trailers helped increase establishment numbers in the second-ranking industry—*Truck body and trailer manufacturers*. A trend in the method of serving a market has influenced the third industry—*Explosives*

Vega production at the General Motors of Canada plant at Ste Thérèse, north of Montreal, utilizes many new assembly-line techniques; at the "body drop" portion of the line, the car body is joined to the chassis. Output for the 1973 model year is 50 cars an hour.



and ammunition manufacturers. To an increasing degree, it has been supplying the mining industry from "mobile" explosives plants, contributing heavily to the increase in establishment numbers.

*Carpel, mat and rug manufacturers* represent the effect of expanded demand for the industry's products, changing buyer preferences combining with an expanded market for floor coverings (one new establishment resulted from a radically new product—indoor-outdoor carpeting). The industry ranks second in average rate of total output.

By way of explanation of the experience of some of the other leading percentage-gainers of establishments, as shown in Table 18, the following comments are made.

*Ready-mix concrete manufacturers*—Although this industry was in fifth place in relative gain in establishment numbers and had a high rate of growth of total output, its establishments increased at almost the same rate as output in terms of average annual rate of change. The ease of entry into this industry on a small scale, where one ready-mix truck may suffice, is a factor.

*Agricultural implement industry*—Although production in this industry is heavily concentrated in large establishments of multi-line companies, the number of establishments has grown at almost the same trend rate as production because of the entry of small, single-line companies producing specialty equipment.

*Plastics fabricators, n.e.s.*—The impact on establishment numbers is from growth of the industry's output; it ranks fifth in terms of average annual rate of increase of real domestic product for the 1961-69 period.

*Fabricated structural metal industry*—Highly decentralized to serve its local markets, establishments in this industry have grown because of increased production and at almost the same rate.

*Manufacturers of mixed fertilizers*—A decentralization of activity in this industry has taken place, with increased use of fertilizer "blending plants" which mix basic fertilizer materials to meet the individual user's needs.

*Communication equipment manufacturers*—Both establishment and production growth reflect the rapid expansion of that nebulous (but unofficial) industrial category, the "electronics industry". Among other product innovations, demand for "hardware" of various types for computer users has led to new establishments. Branch plants have also played a role in establishment proliferation; one company owned three establishments in 1962 and 14 in 1969.

*Manufacturers of electrical industrial equipment*—This industry makes generators, among other items, and has benefited from the growth of electrical utilities. Reorganization in large companies with establishment of branch plants has played an important role; two large firms owned eight establishments in 1962 and 50 in 1969.

*Hardware, tool and cutlery industry*—Although builders' hardware manufacturers have increased little in number over the 1961-69 period, many more tool and die shops have come into existence.

*Synthetic textile mills*—This industry reflects not only the growth of production but reclassification of establishments for statistical purposes, a consideration affecting a number of industries. Cotton yarn and cloth mills now producing synthetics have been "moved" from one industry to another, representing not new plants but a change in product specialization.

*Aluminum rolling, casting and extruding*—Here again, changes in market preferences and product innovation have had an impact on establishment numbers. The growth of mobile home production, noted above, has stimulated the production of shapes in this industry, as has the use of aluminum siding for houses and aluminum uses in high-rise buildings.

*Miscellaneous machinery and equipment manufacturers*—This industry, the largest of the machinery industries in output as well as establishments, has grown with the economy and the level of capital investment.

*Distilleries*—Geographical diversification of production has played an important role in increasing establishment numbers in this industry.

*Machine shops and miscellaneous metal fabricating industries*—Each of the industries in this group has grown in both establishments and production in response to the growth of the other industries that they serve. Survey methods may have had some impact on changes in machine shop numbers.

*Motor vehicle parts and accessories manufacturers*—The large gap between the growth rate of production and that of establishment numbers indicates a much larger average size of establishment. This is a natural consequence of those producers who have obtained orders as a result of the Canada-United States Agreement on Automotive Products achieving the longer production runs they have long needed.

*Cordage and twine industry*—This small industry is unusual in having more establishments in the face of a downtrend in production. The impact of import competition on one of its important products has apparently not affected opportunities for some other new, smaller establishments.

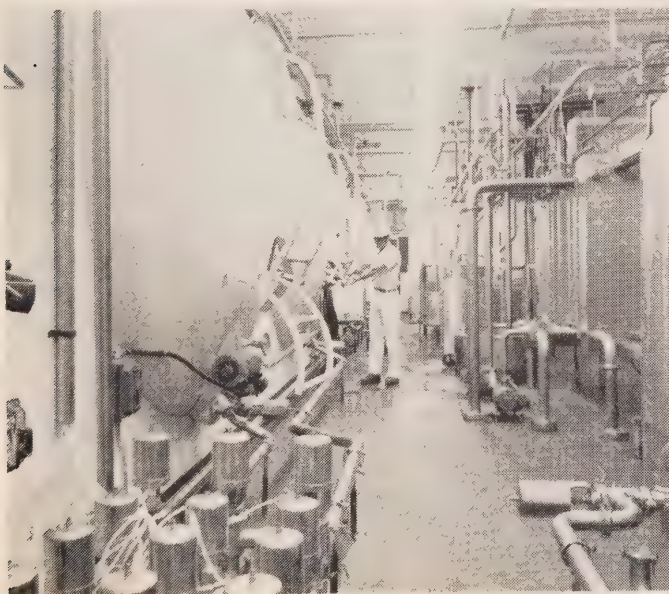


### Industries with Fewer Establishments

Of the 54 industries that had fewer establishments in 1969 than in 1961, the 10 with the largest percentage decreases are shown in Table 18. Again, the apparent reasons for their loss of establishments are illustrative of the factors lying behind similar changes in other industries. The "loss" of establishments may, of course, be a "gain" in another sense where this reflects a higher average size of operation with consequent economies for customers and producers. Some of the losses of establishments reflect such rationalization as a result of technological advance, of competition from domestic producers or from competitors in other countries. In other cases, the loss reflects a declining state in the industry from a lower over-all demand for the product or from adjustment of external competitive pressures.

In two industries with really large numerical declines in establishments—1,535 in *Sawmills and planing mills* and 762 in *Dairy factories*—the source of the declines has been rationalization and technological change. A variety of forces have been acting to eliminate small dairy factories. In addition to uneconomic plants simply going out of business, there have been numerous acquisitions of obsolescent plants by private firms or co-operatives. Milk-receiving stations in rural areas coming into wider use meant that some small companies did not have the capital for these necessary modernizations. Cheese factories also declined over this period. (In the data used here, another industry—process cheese manufacturers—has also been included.) Cost pressures, the demand of modernization and more rational use of forest resources have all combined to sharply reduce the number of small sawmills. (There has been a minor impact, which does not affect the quality of the data, from methods of gathering statistics.)

Although not included on the list of largest percentage changes of establishments, the drop of 570 in bakeries establishments merits comment. Competitive pressures and concentration of retailing have proved disadvantageous to many middle-size or small bakeries and improved highways have perhaps tended to centralize production geographically. During the enumeration for the Census of Merchandising, many small units are identified



The heart of a new modern dairy where pasteurizing, homogenizing and separation into 2-p.c. and whole milk takes place. The production of dairy products is rapidly being concentrated into fewer and larger plants.

(at 10-year intervals), which are primarily manufacturing in nature; consequently, these are added to the Census of Manufactures. An influence in the opposite direction is the tendency of many extremely small bakeries to be identified between Censuses of Merchandising (or during that enumeration) as being essentially restaurants or stores which do some baking of their own. Their small dollar volume means that fluctuations in establishment numbers from these causes have very little effect on the over-all quality of the data.

*Venetian blind manufacturers* had the largest percentage decrease in establishments, although this was always a small industry. This represents the reverse situation to that of some of the industries gaining establishments the most rapidly. Changes in product preferences have reduced demand for the industry's output and establishments have declined at almost the same rate as output.

*Poultry processors* have fewer establishments than in 1961 despite substantial gain in output. Rationalization of production has been under way, a special form of this involving the closing of "defeathering" plants serving central units in a satellite capacity.

Comments on some of the other industries in the table are:

*Stone products manufacturers*—A trend away from the use of stone monuments in cemeteries and to the use of other materials in large buildings has reduced establishments slightly more rapidly than output.

*Hosiery mills*—Rationalization of production is reflected in a one-third decline in establishments.

*Manufacturers of major appliances (electric and non-electric)*—Although the production gain reflects the rise in residential construction and living standards, this industry, with considerable over-capacity and import competition, has experienced a decline in number of establishments, effecting a form of rationalization.

*Hat and cap industry*—Just as consumer preferences have benefited some industries gaining establishments, they have decreased per capita demand for hats; establishments have declined at almost the same rate as output.



Colour TV sets nearing the end of the assembly line in a large Canadian manufacturing plant.

**18.—Leading Industries by Percentage Increase and by Percentage Decrease  
in Number of Establishments, 1961-69**

Industry	Total Establishments		Change in Establishments 1961-69		Average Annual Rate of Change 1961-69	
	1961	1969			Establish- ments	Real Domestic Product
	No.	No.	No.	p.c.	p.c.	p.c.
<b>Increases</b>						
Miscellaneous vehicle manufacturers.....	12	28	16	133.3	12.2	43.5
Truck body and trailer manufacturers.....	112	255	143	127.7	10.9	19.5
Explosives and ammunition manufacturers.....	14	29	15	107.1	7.8	10.5
Carpet, mat and rug manufacturers.....	15	31	16	106.7	11.4	22.0
Ready-mix concrete manufacturers.....	158	307	149	94.3	8.7	7.5
Agricultural implement industry.....	67	124	57	85.1	8.2	9.1
Plastics fabricators, <i>n.e.s.</i> .....	277	503	226	81.6	8.2	19.2
Fabricated structural metal industry.....	78	138	60	76.9	7.3	7.7
Manufacturers of mixed fertilizers.....	43	74	31	72.1	7.8	--
Communications equipment manufacturers.....	125	212	87	69.6	6.6	12.0
Manufacturers of electrical industrial equipment.	98	166	68	69.4	7.0	9.7
Hardware, tool and cutlery manufacturers.....	306	500	194	63.4	6.6	7.8
Synthetic textile mills.....	57	91	34	59.6	6.1	9.0
Aluminum rolling, casting and extruding.....	43	66	23	53.5	5.5	14.2
Miscellaneous machinery and equipment manu- facturers.....	419	639	220	52.5	5.5	8.9
Distilleries.....	18	26	8	44.4	4.6	9.9
Machine shops.....	778	1,122	344	44.2	5.4	11.6
Miscellaneous metal fabricating industries.....	331	469	138	41.7	5.5	6.2
Motor vehicle parts and accessories manufacturers	126	178	52	41.3	5.1	13.2
Cordage and twine industry.....	15	21	6	40.0	4.0	-0.6
<b>Decreases</b>						
Venetian blind manufacturers.....	66	32	-34	-51.5	-9.1	-6.5
Poultry processors.....	205	109	-96	-46.8	-7.3	7.2
Dairy factories.....	1,720	958	-762	-44.3	-7.3	3.8
Sawmills and planing mills.....	3,519	1,984	-1,535	-43.6	-7.7	4.4
Lime manufacturers.....	21	13	-8	-38.1	-8.3	-1.7
Stone products manufacturers.....	133	85	-48	-36.1	-6.9	-5.0
Hosiery mills.....	166	112	-54	-32.5	-4.7	2.4
Leaf tobacco processing.....	16	11	-5	-31.3	-5.8	-4.4
Manufacturers of major appliances (electric and non-electric).....	43	30	-13	-30.2	-4.1	6.5
Hat and cap industry.....	130	91	-39	-30.0	-4.4	-6.4



### 19.—Changes in Establishment Numbers and Industry Highlights, by Industry Group, 1961-69

Industry Group	Number of Establishments		Numerical Change 1961-69	Percentage Change 1961-69	Industry Highlights
	1961	1969			
Metal fabricating industries.....	2,964	3,991	1,027	34.6	Machine shops, 344 increase.
Miscellaneous manufacturing industries...	2,483	2,871	388	15.6	Plastics fabricators, <i>n.e.s.</i> , 226 increase.
Machinery industries.....	544	830	286	52.6	Miscellaneous machinery and equipment manufacturers, 220 increase.
Furniture and fixture industries.....	2,087	2,313	226	10.8	Household furniture industry, 175 increase.
Transportation equipment industries.....	659	881	222	33.7	Truck body and trailer manufacturers, 143 increase.
Printing, publishing and allied industries.	3,450	3,650	200	5.8	Commercial printing, 174 increase.
Electrical products industries.....	533	720	187	35.1	Communication equipment manufacturers, 87 increase; manufacturers of electrical industrial equipment, 68 increase.
Textile industries.....	884	973	89	10.1	Carpet, mat and rug industry, 16 increase; miscellaneous textile industries, 33 increase.
Paper and allied products industries.....	567	640	73	12.9	Paper box and bag manufacturers, 35 increase.
Chemical and chemical products industries.....	1,067	1,136	69	6.5	Manufacturers of mixed fertilizers, 31 increase.
Rubber industries.....	93	104	11	11.8	"Other" rubber industries, 9 increase.
Primary metal industries.....	407	417	10	2.5	Aluminum rolling, casting and extruding, 23 increase.
Petroleum and coal products industries...	91	99	8	8.8	"Other" petroleum and coal products, 5 increase.
Tobacco products industries.....	37	30	-7	-18.9	Leaf tobacco processors, 5 decrease.
Non-metallic mineral products industries.	1,293	1,286	-7	-0.5	Ready-mix concrete manufacturers, 149 increase; concrete products manufacturers, 129 decrease.
Clothing industries.....	2,307	2,289	-18	-0.8	Women's clothing industries, 94 increase; all other industries but men's clothing, decrease.
Knitting mills.....	358	333	-25	-7.0	Hosiery mills, 54 decrease.
Leather industries.....	556	521	-35	-6.3	Shoe factories, 34 decrease.
Food and beverage industries.....	7,734	6,082	-1,652	-21.4	Dairy factories, 762 decrease; bakeries, 570 decrease.
Wood industries.....	5,243	3,503	-1,740	-33.2	Sawmills and planing mills, 1,535 decrease.
<b>Totals, All Industries.....</b>	<b>33,357</b>	<b>32,669</b>	<b>-688</b>	<b>-2.1</b>	

### 20.—Average Percentage Annual Rate of Change, 1961-69, in Specified Statistics of Industry Groups

Industry Group	Establishments per Unit of Real Domestic Product <sup>1</sup>	Total Number of Establishments	Real Domestic Product	Employees per Establishment
	p.c.	p.c.	p.c.	p.c.
Wood industries.....	-9.4	-5.4	4.4	7.2
Transportation equipment industries.....	-9.1	4.0	14.4	2.2
Food and beverage industries.....	-7.3	-3.0	4.7	4.3
Chemical and chemical products industries.....	-7.1	0.8	8.4	2.2
Miscellaneous manufacturing industries.....	-6.5	1.8	8.9	3.2
Furniture and fixture industries.....	-5.9	1.4	7.8	2.6
Tobacco products industries.....	-5.7	-3.3	2.6	2.4
Primary metal industries.....	-5.5	0.5	6.3	2.8
Knitting mills.....	-5.5	-0.9	4.9	1.8
Electrical products industries.....	-4.8	4.2	9.5	0.5
Textile industries.....	-4.8	1.3	6.4	0.4
Rubber industries.....	-4.8	2.1	7.2	-0.1
Non-metallic mineral products industries.....	-4.8	-0.4	4.7	2.7
Machinery industries.....	-4.0	5.6	9.9	0.7
Petroleum and coal products industries.....	-3.3	1.2	4.6	-1.6
Metal fabricating industries.....	-3.3	4.3	7.9	0.1
Printing, publishing and allied industries.....	-3.0	0.7	3.7	1.2
Clothing industries.....	-2.9	-0.1	2.9	1.1
Paper and allied industries.....	-2.4	1.6	4.0	1.4
Leather industries.....	-0.1	-0.8	-0.8	0.1

<sup>1</sup> Establishments divided by index of real domestic product for industry group (1961=100).

### Section 3.—Government Assistance to Manufacturing

#### Subsection 1.—Federal Assistance to Manufacturing\*

The Department of Industry, Trade and Commerce (a merger of the former Departments of Industry and of Trade and Commerce Apr. 1, 1969) has responsibility for stimulating the establishment, growth and efficiency of the manufacturing, processing and tourist industries in Canada, and also for the development of export trade and external trade policies. It assists Canadian industries to initiate and take advantage of technological advances, improve products and services, increase productivity and expand domestic and foreign markets. To achieve these goals, a wide variety of programs and services are offered. At each phase of the product cycle—from research, development and design through production and marketing—the Department can assist with information and financial assistance.

**Program for the Advancement of Industrial Technology (PAIT).**—The objective of PAIT is to promote the growth and efficiency of industry in Canada by providing financial assistance for selected projects concerned with the development of new or improved products and processes incorporating advanced technology, which offer good prospects for commercial exploitation in domestic and international markets. The program, initiated in 1965, was revised in 1970 to provide cash grants in lieu of loans, and has been expanded to include assistance for some specific activities outside of the development phase.

Financial assistance, normally 50 p.c. of the development costs and certain eligible preproduction and marketing expenses, is available to companies incorporated in Canada for projects to be carried out in Canada. Title to any invention or patent is vested in and remains the property of the company. Companies are expected to have the capabilities and facilities to undertake the development work and also to provide for the manufacture and sale of the resulting products. The program is designed to increase the technical competitiveness of Canadian industry and is also intended to help create an industrial environment attractive to Canada's best-qualified scientific, technical and managerial personnel.

To Mar. 31, 1971, the Government had made commitments to provide assistance to the extent of \$90,000,000 for 368 projects having an estimated value of \$178,000,000.

**Industrial Research and Development Incentives Act.**—This legislation, enacted in March 1967 and administered by the Department of Industry, Trade and Commerce, provides cash grants or equivalent tax credits equal to 25 p.c. of capital expenditures of corporations for scientific research and development conducted in Canada, and for the increase in current expenditures in Canada for scientific research and development over the average of such expenditures in the preceding five years. To qualify for a grant, expenditures must be for scientific research and development which, if successful, is likely to lead to or facilitate an extension of the business of the corporation. In addition, a corporation must undertake to exploit the results of the research and development in Canada and must normally be free to export products resulting from such research and development to all countries of the world.

**Automotive Program.**—The Canada-United States Agreement on Automotive Products signed by the Prime Minister of Canada and the President of the United States on Jan. 16, 1965, provides for the removal of tariffs and other impediments to trade between the two countries in motor vehicles and original equipment parts. The basic objectives of the Agreement are: creation of a broader market to permit benefits of specialization and

\* Prepared in the Promotion Branch, Canadian Division, Department of Industry, Trade and Commerce, Ottawa.

scale; trade liberalization to enable both countries to participate in the North American market on a fair and equitable basis; and development of conditions in which market forces would operate to attain economic patterns of investment, production and trade. (See also Chapter XXI.)

As a result of this program, Canada is now producing an increasingly larger share of the total North American output of vehicles and components. Canadian exports of vehicles and parts and employment in this industry have increased substantially, and additional investment in new plants and expansion to existing facilities have been extensive. Although all of the objectives have not yet been fully realized, the Agreement is working well.

**Machinery Program.**—A machinery program was introduced on Jan. 1, 1968, with the objective of increasing efficiency in Canadian industry by enabling machinery users to acquire advanced capital equipment at the lowest possible cost while affording Canadian machinery producers tariff protection on what they manufacture. At the same time,



Testing a \$20,000,000 PA and-company-funded project. This submersible service capsule containing a life-support system for oil production crew working on the ocean floor, headed for a \$7,000,000,000 market.



Canadian machinery producers are protected by a single statutory rate of duty which applies immediately when they are in a position to supply. This is particularly significant for Canadian producers of custom-engineered machinery.

The program covers a broad range of machines classifiable under Tariff Item 42700-1 including general-purpose machinery, metalworking and woodworking machinery, construction and materials handling equipment and various types of special industry machinery, such as pulp and paper and plastics industry machinery, and service industry equipment. The statutory rate of duty under that Tariff Item is  $2\frac{1}{2}$  p.c. British preferential and 15 p.c. most-favoured-nation.

The program provides that the duty otherwise payable on machines, accessories, attachments, control equipment, tools and components, imported under Tariff Item 42700-1, may be remitted if such remission is in the public interest and the goods imported are not available from production in Canada. A Machinery and Equipment Advisory Board advises the Minister of Industry, Trade and Commerce regarding the eligibility of machinery for remission of duty in accordance with the provisions of the Tariff Item. The Board, in turn, is assisted by the Branches of the Department concerned with individual industries, including machinery manufacturing. Final authority for granting remission lies with the Governor in Council.

Under the program, machinery producers may also apply for remission of duty on production parts and components included in Tariff Item 42700-1 which they cannot procure in Canada. This provision is for the purpose of stimulating Canadian machinery manufacturers to specialize their production and enable them to compete more effectively.

In the budget of June 18, 1971, the provisions of the Machinery Program were extended to importations under Tariff Item 41100-1 covering machinery for use in sawmills and logging. Also in 1971, the Machinery and Equipment Advisory Board was given the responsibility to examine all tariff remission applications in respect of machinery and equipment or production tooling for the manufacture of original equipment, automotive parts and accessories; this was previously the responsibility of the Adjustment Assistance Board.

**Building Equipment, Accessories and Materials Program (BEAM).**—The BEAM program was established to assist in achieving greater efficiency and productivity in the manufacture and use of building equipment accessories and materials, thereby realizing economic gains from the industry's domestic and foreign activities. The objectives of the program include: establishment of a comprehensive National Construction Information System; encouragement of modular dimensional standardization and co-ordination; acceleration of the industrialization of the building process; development and expansion of export markets; promotion of uniform building regulations and standards; and encouragement of building design excellence through awards programs.

The program is being implemented and is subject to further development through the Construction Industry Development Council and in co-operation with industry through the major associations. The Council, which is responsible to the Minister of Industry, Trade and Commerce, is national in scope, comprised of 35 representatives of the manufacturing, design and contracting sectors of the industry as well as labour unions, universities and government. It provides a forum for industry-government dialogue on matters of economic and technological importance to the construction industry and a means of assisting the industry to become a modern integrated industry with a high potential for competing in export markets. Co-operating directly in the BEAM program are the Canadian Construction Association, the Royal Architectural Institute of Canada, the Association of Consulting Engineers of Canada, the Specification Writers Association, the National Home Builders Association, and the Housing and Urban Development Association of Canada.

Having established the needs and priorities for construction information in Canada, ways in which a comprehensive and flexible information system can be developed were

identified. A *Thesaurus of Canadian Construction Industry* terms has been compiled in both English and French to assist in providing a means of indexing to the System and to resolve the ambiguity in construction terminology.

The design and performance specifications for a National Construction Information System have been completed and work has commenced on the acquisition of data suitable to the System. To provide a commercial vehicle for operating this System a non-profit corporation known as the Canadian Construction Information Corporation has been chartered.

The Department has continued the program to encourage the increased use of dimensional standardization and co-ordination of building components and buildings. Initially, conferences were held throughout Canada to acquaint policy-makers within the industry with the technological and economic advantages of modular standardization. These conferences continue to be followed up by a program of Clinics of Modular Practice. In addition, a *Directory of Modular Building Components* is published annually.

Encouragement of greater industrialization of the building process through an understanding and application of a systems approach to building is being carried out through publications and through conferences and seminars held across Canada.

To encourage building design excellence, awards for the creative use of materials in architecture and structural engineering have been presented under the Design Awards Program. This program is sponsored by the National Design Council and the Department of Industry, Trade and Commerce in co-operation with the Portland Cement Association within the framework of the BEAM program.

The promotion of universal use of the National Building Code is continuing. Manitoba has made it mandatory for all larger cities and towns. Ontario, New Brunswick, Nova Scotia and British Columbia have taken or are planning to take similar action and Quebec is studying its feasibility. An index of all codes, standards and specifications used in the Canadian construction industry has been compiled and is available as an information document entitled *Building Standards Index*.

Export opportunities for the goods and services of the construction industry continue to be identified through the Department's trade posts abroad and in co-operation with industry.

**Industrial Design.**—The design program, under authority of the National Design Council Act, administered by the Department of Industry, Trade and Commerce, implements programs to promote and expedite improvement in the products of Canadian industry. The Department is also responsible for developing and carrying out programs and projects that may be appropriate to the utilization of improved industrial design.

Current design programs include: financial and technical assistance to co-operating educational institutes for the purpose of introducing design training at the technical and university levels; seminars on various facets of design for the benefit of the professions, educators, business executives and the general public; awards programs for achievements over a broad field of design endeavour; the awarding of scholarships for advanced training in industrial design in Canada and abroad; the awarding of grants for design research and design promotion in Canada; and the provision of technical and financial assistance to committees and groups dedicated to the implementation of programs to foster good design on a national, regional or industry basis.

Extensive studies conducted in 1969 into the state of design in Canada revealed that the focus of attention should be directed to the manufacturing sector. As a result, the operation of the Design Canada Centres ceased on Mar. 31, 1970, and a program of industrial design assistance was introduced in 1970-71, under which financial support is given to the manufacturing industries that demonstrate their interest in developing new and improved designs by employing qualified industrial design services. Such assistance is available to companies incorporated in Canada, to groups of companies organized as consortia, and to trade associations that can satisfy program requirements; it is concentrated

on relatively short-term projects of product innovation and is limited to 50 p.c. of the industrial design operational and administrative costs, subject to the technical and commercial feasibility of the project.

In recognition of the outstanding contribution of Canadian business management toward the cause of good design, a National Design Council Chairman's Award for Design Management was introduced in 1970, to be presented to the management which, in the Council's opinion, does the most to integrate and efficiently apply good corporate design policy. This Award is conceived in the broadest terms of a total design management context—from the premises to the packaging.

**Defence Industry Productivity Program.**—This program (combining the former Industry Modernization for Defence Exports Program and the Defence Development Sharing Program) is designed to enhance the technological competence of Canadian defence industry in its export activities by providing financial assistance to industrial firms for selected projects. Emphasis is placed on those areas of defence technology having civil export sales potential. Assistance may cover the development of products for export purposes; the acquisition of modern machine tools and other advanced manufacturing equipment to meet exacting military standards; and assistance with preproduction expenses to establish manufacturing sources in Canada for export markets.

Projects initiated under this Program have greatly assisted industry in developing skills on a specialized basis in fields of technology that have defence and civil applications, which Canada is favourably situated to exploit. Costs of these projects are shared by the Department and the Canadian firm concerned and, in some instances, by the governments of other NATO countries. Manufacturing equipment projects are selected for assistance on the basis that the machinery acquired will make a significant contribution to increased productivity. Generally, this means that the machinery is the most advanced of its type, such as numerically controlled metalworking equipment.

**Automotive Adjustment Assistance Program.**—This program, which remains in force until June 30, 1973, offers opportunities to Canadian automotive parts manufacturers for expanded production, rationalization of output and reduced costs. In order to take advantage of these opportunities, Canadian parts makers must engage in substantial re-equipment and plant expansion programs. Term loans are made available for the financing of the acquisition, construction, installation and modernization of facilities or machinery and for use as working capital. Tariff remission was transferred to the Machinery and Equipment Advisory Board, effective June 1, 1971.

**General Adjustment Assistance Program (GAAP).**—This Program, established in 1968 and revised in 1971, helps manufacturers take advantage of export opportunities arising from the Kennedy Round and assists manufacturers of textile or clothing goods or footwear to improve their competitive position in domestic or export markets. The Program also provides assistance to manufacturers who have been injured, or are threatened with serious injury, as a result of Kennedy Round reductions of Canadian tariffs, and to manufacturers of textile or clothing goods or footwear who require financing to adapt efficiently to disruptive import competition which is threatening, or causing, serious injury. Assistance under the program is also available to firms that provide marketing, financing or other services essential to the operations of manufacturers described above.

The governing Regulations require that eligible firms for whom loan insurance or direct loans are approved be unable to acquire the financing provided by the Board or through the Board's support from conventional sources on reasonable terms and conditions.

Assistance is available in three forms: government insurance against the risk of loss on loans made by private lenders for the purpose of financing viable restructuring projects; direct government loans to eligible applicants in special cases; and grants covering up to 50 p.c. of cost to manufacturers who require outside consulting assistance to develop restructuring proposals.



The program is administered by a General Adjustment Board on which both private industry and government are represented.

**Ship Construction Subsidy Regulations.**—Since 1967, the Department of Industry, Trade and Commerce has been responsible for shipbuilding matters, including the Ship Construction Subsidy Regulations and certain sections of the Income Tax Act and Regulations. The industry continues to respond to the policy of national competition for government shipbuilding requirements and has made active use of the subsidy program for commercial vessels. The latter provided a subsidy rate of 25 p.c. for ships other than fishing vessels for the period 1966-69, after which time it is being reduced by one half of 1 p.c. each quarter until a rate of 17 p.c. is reached in 1973. For fishing vessels, the subsidy rate is 35 p.c. With the support of other programs, the Department has encouraged the development of production of marine components and exports in this area have been increased. Also, assistance has been given to several shipyards to encourage modernization of shipbuilding facilities.

**Shipbuilding Temporary Assistance Program (STAP).**—Because the demand for Canadian-flag ships has been in a temporary decline and assistance under the Ship Construction Subsidy Regulations is not applicable to foreign-flag vessels, the Shipbuilding Temporary Assistance Program was announced in November 1970 to enable Canadian shipyards to maintain their employment levels by building for the world market. Under STAP, shipbuilding grants at 17 p.c. of approved cost (14 p.c. for very large vessels) are paid to shipyards building for registration in countries other than Canada. Some \$110,000,000 of shipbuilding contracts have been obtained (up to December 1971) by Canadian yards with the assistance of this program.

**Pharmaceutical Industry Development Assistance (PIDA).**—This program was authorized by Parliament in March 1968, and is administered by the Pharmaceutical Industry Development Advisory Committee of the Department of Industry, Trade and Commerce. Through PIDA, the Department encourages development of a more efficient pharmaceutical industry in today's competitive environment as a means of accomplishing both a greater economic contribution by the industry and better price levels for its products as they reach the consumer. By means of financial assistance, firms are encouraged to form corporate units able to employ competent management and other personnel, perform suitable research and development and undertake effective marketing programs. It enables generic drug manufacturers to improve their ability to manufacture and market lower-priced prescription drugs at more competitive prices by reorganization of their manufacturing and marketing systems. The program is particularly helpful to smaller drug manufacturers.

Under PIDA, proposals may be made to merge or annex a number of existing activities in order to increase productivity. Such plans might include mergers or joint activities in any or all of the areas of research and development, purchasing, manufacturing, distribution and marketing. Direct loans at commercial interest rates are available to provide the capital necessary for implementation of approved pharmaceutical industry development proposals.

**Program to Enhance Productivity (PEP).**—This Program is designed to induce improved productivity in manufacturing and processing industries in Canada by means of contributions to encourage companies to undertake intensive studies of significant and imaginative efficiency-improvement projects.

PEP offers a grant of a specified amount up to a maximum of \$50,000 to support up to 50 p.c. of the approved costs of a feasibility study. Repayment is not required.

The Program is intended to foster the conduct of studies that have the potential to lead to high productivity improvement projects but which, without support, likely would not be undertaken. Such a project would have been developed to the stage where the

possibility of a new approach being achievable appears reasonable but the information base is inadequate for purposes of decision-taking and the cost of obtaining such information is such that the company, without assistance, will not proceed with the project. Conversely, it is intended that the Program not assist in the conduct of studies that would likely have been carried out in any event. PEP is also designed to spark innovation as it applies to the production phase of manufacturing and processing and not as it applies to the product or process research and development phases.

If the feasibility study requires that a market analysis be conducted, the cost of the market analysis portion would not normally be expected to exceed 25 p.c. of the total cost of the study.

**Incentive for Participation in Capital Projects Abroad.**—The objective of this program is to increase Canadian participation in foreign capital projects by sharing with companies expenses incurred when competing during the pre-contractual phases of selected projects. The term "capital projects" is intended to describe facilities, systems and other complexes whose construction entails the provision of skilled services, engineering products and other capital goods. The expenses eligible for sharing with the Department will be those incurred in the pre-contractual phases of actual or potential projects and normally will fall into the categories of exploratory studies and preparation of initial proposals and bids.

The Department's contribution normally will be 50 p.c. of the costs incurred on defined work. If a company that has received assistance is successful in obtaining the business sought, repayment of the Department's contribution will be required. Repayment is not required where a company is not successful in obtaining a contract.

### **Subsection 2.—Provincial Assistance to Manufacturing\***

Assistance given by the respective provincial governments to manufacturing within their own territories is outlined in the following paragraphs.

**Newfoundland.**—The Newfoundland Government offers the following forms of assistance to prospective manufacturing firms:

- (1) The government offers advice and assistance to prospective industry in determining desirable plant location in the province and in the preparation of feasibility studies. Information can be made available on the source and availability of raw materials, transportation costs, labour costs and a variety of other economic data. The government will transport industrialists anywhere in the province so that they may obtain a first-hand look at potential plant sites.
- (2) Financial assistance may be provided by the government directly or through its Crown corporation, the Newfoundland Industrial Development Corporation and may take the form of loans against the securities offered by the prospective enterprise, or the acquisition and holding of shares or other securities of any company wherever incorporated, with the right of the enterprise to buy back these shares.
- (3) Buildings, where they exist, and land may be provided on very attractive terms.
- (4) Based on cost-benefit analyses, the government might be willing to subsidize the cost of electric power.
- (5) In two special areas within the province (Stephenville and Bell Island) the Newfoundland Government is prepared, for a period of two years after production commences, to exempt prospective firms from the province's share of the corporation income tax.
- (6) In special instances and in two special areas (Stephenville and Bell Island), the Newfoundland Government is prepared to exempt prospective firms from the provincial sales tax on original machinery, equipment and material used for plant construction or expansion.
- (7) Development operators may be exempted from paying the provincial tax on diesel oil and gasoline used in manufacturing or processing operations.
- (8) Industrial training facilities are available throughout the province for specialized courses to meet the requirements of incoming industry.

\* Prepared by the provincial authorities concerned.

**Prince Edward Island.**—Provincial assistance to manufacturing is generally funnelled through Industrial Enterprises Incorporated (IEI), a Crown corporation of the Prince Edward Island Government. It is prepared to offer assistance to prospective Island industries by way of long-term financing at attractive rates of interest. In addition, IEI assists industries by acting as a clearing house for information regarding alternate sources of credit in financing through other lending institutions or outright grants that may be available from government sources. IEI is also equipped to provide research and management services to existing Island industries or to groups contemplating new projects on the Island.

The Act incorporating IEI is particularly flexible in the terms of reference describing the manner in which IEI may participate financially in assisting industry in the province. Participation is generally by way of a first mortgage on facilities but could well be in the form of an equity position. The ratio of IEI's participation to that contributed by the investors has been very generous in the past and, necessarily, will be negotiated on an individual project basis in the future.

**Nova Scotia.**—The Province of Nova Scotia offers two programs of direct financial assistance to new or expanding manufacturers.

(1) *Industrial Estates Limited (IEL)*, a Crown corporation of the province formed in 1957, will finance 100 p.c. of the cost of land and buildings and at least 60 p.c. of the installed cost of machinery and equipment of new or expanding Nova Scotia manufacturers. The terms and conditions of financing made with clients are negotiable. IEL has made special arrangements with most Nova Scotia municipalities whereby the local taxes paid by its clients are limited to 1 p.c. of the building cost for a period of 10 years.

Additionally, IEL's Small Business Financing Division will assist manufacturing or processing industries with annual sales under \$750,000 through loans, loan guarantees and minority equity positions.

(2) The *Nova Scotia Resources Development Board*, affiliated with the Department of Development, is an amalgamation of previous loan boards including the Industrial Loan Board, the Farm Loan Board, the Fisherman's Loan Board and the Timber Loan Board. The new Board will provide financing for tourism facilities, farms and primary agriculture processing, fish plants and vessels, saw and planing mills, and timberland.

Special municipal tax assistance which is authorized under the Nova Scotia Bonus Act may provide assistance to new or expanding firms by limiting the assessment or by limiting the tax rate for a specified period of time.

It should be mentioned, in addition, that the Cape Breton Development Corporation, a federal Crown agency, is responsible for fostering greater economic activity in the Cape Breton area of Nova Scotia through the promotion of industries. The program is very flexible and the actual amount of financial assistance that will be provided to any one company or group will depend upon the over-all merits of the individual case. (See Index.)

**New Brunswick.**—The New Brunswick Department of Economic Growth has the key function of planning, directing and co-ordinating the broad strategy of economic and industrial development activities in the province. This, to a large extent, involves the provision of assistance to encourage existing industry to expand and new industry to establish. In order to carry out this function, the Department consists of three operating Branches.

(1) *The Industrial Finance Board* guarantees the repayment of loans by persons, associations or corporations engaged in industry. Applications are accepted from manufacturers only and the assistance takes the form of a guarantee, of a bank loan or bond issue. Loans are to be secured by a first charge on real property, machinery and equipment.

(2) *The Industrial Services Branch* provides support services to industry through two Divisions: the Marketing Services Division complements the work of the federal Department of Industry, Trade and Commerce with a substantial external trade promotion pro-



gram, including trade fairs and missions, licensing arrangements and assistance in documentation and provides local industry with export opportunities; the Engineering Services Division has the prime responsibility for implementing the government's program of maximizing New Brunswick product content in public construction and the provision of industrial engineering assistance, production control and other engineering services.

(3) *The Development Co-ordination Branch* is responsible for co-ordinating the development efforts of the various provincial departments and agencies. It also acts as the provincial liaison unit with the federal Department of Regional Economic Expansion.

In addition, the New Brunswick Development Corporation, a Crown agency, was established to develop existing and introduce new industry to the province. It is empowered to make loans or guarantees of loans, security being usually taken in the form of a first mortgage. The Corporation must be satisfied that the funds required could not be obtained from conventional sources on reasonable terms and conditions.

A Project Branch undertakes feasibility studies required by industrial principals wishing to establish manufacturing facilities within the province. It investigates, for example, markets, resources, labour, transport, plant location, economic viability, etc., as required. An Engineering Branch advises on all engineering aspects for any new developments and expansion proposals. It has also developed and administers three industrial parks, each of which is set up as a separate company.

Another agency directed toward the economic development of the province is the New Brunswick Research and Productivity Council (see p. 470). The Council is an industrial research and development consulting organization and the source of technical information on processes, machinery, plant, etc., and of industrial engineering advice and assistance to local industry. A wide selection of testing and calibration services is provided.

**Quebec.**—In 1971, the Quebec Government adopted new legislation dealing with financial aid to industry, which is considered to be among the most comprehensive in North America. Legislation was regrouped into two programs—Bill 20, "an Act respecting industrial development in Quebec" which provided for setting up the Industrial Development Corporation, and Bill 21, "an Act to stimulate industrial development through tax advantages". The Industrial Development Corporation replaces the former Industrial Credit Board which has been phased out.

The aim of these programs is to assist in the transformation of the industrial structure of Quebec through assistance to technologically advanced industries and through regrouping the production facilities of already existing enterprises to enable them to improve their competitive position. Moreover, firms unable to obtain financial assistance elsewhere at reasonable rates and conditions may benefit under these programs if it is considered that such assistance would contribute to the economic development of the province or of one of its regions. The amount of assistance provided is dependent upon the region involved, the nature of the products being manufactured and the production techniques being used. The new legislation has made possible the consolidation of old programs, further integrating them and, above all, making them complementary to federal legislation in the same field.

The Industrial Development Corporation is authorized to grant financial assistance to a manufacturing firm making an initial investment of at least \$150,000 to build, buy or enlarge a plant or factory, to acquire machinery, tools or equipment, to buy or exploit patents, or to improve the financial structure of the enterprise. The aid may take various forms, depending on the nature and the needs of the firm in question. Such forms include: loans at lower-than-market interest rates; absorption by the Corporation of part of borrowing costs; exemption from repayment of part of loans contracted from the Corporation—a condition subject to certain criteria of productivity and the number of jobs created; purchase by the Corporation of buildings or machinery for resale or lease to a manufacturing enter-

prise; and acquisition by the Corporation of shares in a manufacturing enterprise in a proportion not to exceed at any time more than 30 p.c. of the working capital of such enterprise.

Under the new legislation, the Quebec Government grants tax advantages consisting of a reduction in taxes on company profits with respect to investments in Quebec by manufacturing enterprises on condition that such investment be at least \$150,000. The amounts eligible should be related to building or enlargement of plants or factories or to the purchase of machinery, tools or new equipment. Eligible companies may deduct amounts equalling 30 p.c., 50 p.c. or 100 p.c. of their investment in calculating their profits, depending on the zone where such investment is made.

**Ontario.**—The Province of Ontario gives direct assistance for industrial expansion and increased trade through the Ontario Development Corporation (ODC), a Crown agency for economic and regional development which is answerable to the Legislature through the Minister of Trade and Development. The ODC program provides interest-free performance loans; term loans at reasonable rates of interest; technical and advisory services; and rental and leaseback of manufacturing plants in approved areas. Performance loans, generally representing about one half of approved capital requirement for Canadian-owned companies and about one third for foreign-owned companies, are forgiven over a six-year period as the company meets its commitments. A "Venture Capital for Canadians" fund provides financial assistance to assist with the introduction of new technology, development of export markets or establishment in Ontario of new manufacturing operations in co-operation with other investors. Loans of up to \$50,000 are available to small Canadian-owned companies in all parts of the province to expand their operations in fields of manufacturing or services closely allied to manufacturing. Term financing is provided through mortgages, debentures, etc., in many of Ontario's smaller centres of population. Loans may run up to 20 years and are available for construction of new manufacturing buildings or the extension of existing buildings, and for purchase of new manufacturing equipment that will substantially add to employment. The Corporation may also act as a catalyst in arranging financial packages for companies, and will provide advice on obtaining financing from private lenders, government and other sources.

*Equalization of Industrial Opportunity (EIO).*—Under this program, started in 1967, secondary manufacturing companies establishing new facilities in provincial equalization areas or making approved additions to existing facilities are eligible for EIO loans. The loans are available to companies building new plants and will also apply on new machinery when 75 p.c. of the machinery installed is new.

*Northern Ontario Development.*—The Northern Ontario Development Corporation was formed in 1970, offering loan and advisory services to meet the special requirements of the northern area of the province. This Corporation is part of a large reorganization of services in northern Ontario.

*Trade and Development.*—The Trade and Industry Division of the Department of Trade and Development provides advisory services on financial and marketing matters through four Branches: the Industrial Development Branch provides market research information, details of land and building costs, municipal services, energy and labour costs, incorporation and customs laws, material sources, and transportation facilities; the Marketing Branch assists Ontario companies to export by sending trade missions abroad, by bringing in foreign buyers and through educational programs; the Research Branch provides economic studies for the Division and may also undertake short-term research for industry; and the International Branch operates a trade and industry counselling service in 14 world markets—New York, Chicago, Los Angeles, Boston, Atlanta, Cleveland, Minneapolis/St. Paul, London, Frankfurt, Milan, Stockholm, Vienna, Brussels and Tokyo.

The Department of Trade and Development also operates an immigration service to assist Ontario employers seeking staff.

*The Sheridan Park Research Community.*—The Sheridan Park Corporation has established the Sheridan Park Research Community at Mississauga, which has research laboratories and facilities that offer an interchange of ideas and techniques and help participating companies to stay competitive in world markets. Research creates new and improved products as well as better utilization of natural resources. This unique \$42,000,000 community employs some 1,600 persons in 10 resident companies and corporations.

*The Ontario Economic Council.*—This 20-member advisory group reports to Cabinet on methods to encourage maximum development of human and material resources throughout Ontario. Members of the Council are private citizens who serve without pay. (See Index.)

**Manitoba.**—The Department of Industry and Commerce, established in 1948, is the focal point of provincial government effort in the drive for economic development in Manitoba. To carry forward a comprehensive range of economic development programs, the Department has established various branches and agencies, using an organizational concept that provides industry specialization combined with comprehensive program support.

The Industry Group consists of five Branches with the specific commodity interests of: Food Products; Chemicals; Machinery and Equipment; Industrial Materials and Services; and Consumer Goods. Each is charged with the responsibility of fostering maximum economic growth in its sector, through expansion of existing firms and attraction of new investment. Each has the function of studying trends in its sector, identifying business opportunities, and assisting firms through market research, business development, trade development and casework. The Programs Group has four Branches directly concerned with the implementation of programs in the areas of research and technology, economic and transportation research, management and productivity development and regional development.

Some 50 professionals plan and carry out all programs, consulting and engineering services, and research activities. In addition, the Department works closely with other agencies on matters affecting Manitoba's economic development. The following three associated agencies are special-purpose bodies of private citizens supported by Department staff.

The *Manitoba Export Corporation* assists Manitoba firms in developing export sales. It works closely with each industry Branch and is empowered to appoint agents abroad and to handle exports for Manitoba manufacturers. Services include extensive practical advice on pricing documentation, export procedures and tariffs. The Corporation can assume all the duties of an export department for Manitoba companies. The *Manitoba Design Institute* promotes and encourages the application of industrial design principles in Manitoba companies through a series of seminars, workshops, product evaluation sessions, packaging clinics and direct assistance. The *Manitoba Research Council* serves as a focal point to encourage and co-ordinate technical undertakings in the province. It encourages co-operation between scientists and engineers in government, universities and community colleges, and industry for the purpose of meeting the special needs of the province arising from location, climate and resources. Several programs of innovation assistance have been devised by the council, including an Industrial Enterprise Fellowships program to encourage research teams to use their skills to foster the creation of industrial enterprises. Four advisory committees of council have been commissioned to help develop centres of excellence in research in specific subject areas. A technology transfer program is available to industry, including assistance with licensing arrangements.

The Department of Industry and Commerce has introduced two new programs to provide assistance. The first is the establishment of Industrial Fellowships to stimulate the creation of industrial enterprises and the second is the formation of four committees to help develop centres of excellence in research.



*The Manitoba Development Corporation.*—This is a Crown corporation established in 1958 to provide financing for new and existing manufacturing and processing industries, for the tourist industry and for community development corporations in the province. In considering applications for financial assistance, the Corporation is influenced mainly by sound business practices and the potential contribution to the economic growth of Manitoba, including the creation of employment opportunities. Given these considerations, loans are usually extended when financing is not otherwise available on reasonable terms and conditions, provided the owner has invested a reasonable amount of capital in the business. The terms of repayment can be tailored to suit the requirements of the individual applicant.

Two new divisions have been established. The Small Loans Division provides financial assistance to small businesses in the early stages of growth. In addition to manufacturing and processing industries, certain service industries are also eligible for assistance under this program. The Management Services Division provides financial counselling to Manitoba firms and makes available a broad range of management counselling services to borrowers of the Corporation.

*Manitoba Regional Development Corporations.*—By Manitoba legislation, enacted in 1964, these essentially autonomous organizations came into being to undertake promotion in a wide sphere of regional interests. They were created to promote industrial, commercial and tourist developments in their respective areas and to respond more effectively to the changes taking place in rural areas. They represent a unique instrument in Manitoba and have proved extremely effective in meeting the challenges of regional development through improved communication with people at the regional level. The Department of Industry and Commerce has encouraged the formation of regional development corporations in Manitoba and the Manitoba Government has contributed to their operating costs. At present, seven regional development corporations, encompassing all of Manitoba except Metropolitan Winnipeg, have been formed.

*Manitoba Incentives to Industry.*—The Province of Manitoba offers an improved incentives program for Manitoba companies generally engaged in production/processing, distribution or specialized construction. These incentive programs are offered through the Department of Industry and Commerce to help Manitoba firms pay for growth-plan costs in the following six areas of industrial interest.

- (1) The Feasibility Studies Incentive Program has been established to share the costs incurred by eligible Manitoba companies undertaking feasibility studies to develop plans for company growth and assist in application for grants offered by the federal Department of Regional Economic Expansion.
- (2) Technical Assistance Incentives are available to aid Manitoba firms to retain private consulting and advisory services, thus permitting Manitoba companies to take advantage of modern management techniques to improve manufacturing productivity, product acceptance and organizational control and efficiency.
- (3) Design Improvement Incentives are available to aid Manitoba firms to retain private consulting and advisory services. The purpose is to assist Manitoba companies with the improvement of market acceptance and competitiveness of existing products, with the creation of profitable new products and generally to improve their competitive position in national and international markets.
- (4) The Research and Development Incentives Program enables eligible Manitoba companies to obtain assistance for product innovation and testing. The objective is to encourage the introduction of new products or a radical improvement of existing products, through research and development.
- (5) The Exports Incentives Program assists eligible Manitoba companies seeking new export markets by participating in defraying the costs incurred in approved advertising, sales promotion or merchandising in new export markets.
- (6) The Manpower Development Incentives Program assists Manitoba companies in the establishment of effective manpower development and training programs for employees, through a sharing of costs incurred for the professional advice necessary to set up such programs.

**Saskatchewan.**—Assistance to industry in Saskatchewan is given through the Department of Industry and Commerce, whose activities and programs are carried out through the following Branches. The Industry Development Branch promotes the establishment of new manufacturing and processing operations, resource industries, industrial service and warehouse facilities; assists established companies to expand and/or maintain their manufacturing and service facilities; locates and investigates development opportunities in manufacturing, processing, resource development, service and warehousing; and compiles, publishes and disseminates information on all phases of the province's economic development. The Area and Trade Development Branch identifies export markets for Saskatchewan-made goods and brings these market opportunities to the attention of local manufacturers; initiates export promotion programs for specific industries exhibiting export potential; and works with communities seeking industrial and commercial expansion and maintains close liaison with local industrial development groups and agencies. The Tourist Development Branch undertakes a variety of programs designed to increase public awareness of the province's tourist facilities and attractions, to expand and to improve these recreational and tourist resources; and maintains close liaison with private and public tourist agencies and groups in formulating and carrying out programs for the development of a strong tourist industry. The Business Assistance Branch provides management advice as well as financial assistance to eligible firms to aid in the development and maintenance of small businesses.

*Saskatchewan Economic Development Corporation (SEDCO).*—The province also provides financial assistance to industrial enterprises through SEDCO, a Crown corporation established in 1963 for the purpose of expanding the industrial base of the province through loans for the establishment or expansion of industrial enterprises; a secondary purpose is to provide funds for diversification of agricultural enterprises.

SEDCO assistance can take many forms, the most common of which is a first mortgage loan over a medium term. Security for such loans consists of specific pledges of land, buildings and/or equipment, and the support of the individuals involved in the applicant business is normally pledged as well. Repayment terms for such loans are designed to suit the income pattern of the enterprise, and may include such features as step-payments, seasonal payments or similar arrangements.

The Corporation can also provide working capital loans, but these are available only if normal sources are unwilling or unable to provide the appropriate amount; they may be secured by a pledge of fixed assets or of current assets.

In all cases, the Corporation expects that the owners of the borrowing company will have a reasonable equity contribution in the enterprise. In certain instances, the Corporation will consider making an equity investment in its own right if required to maintain a reasonable balance between debt and equity.

The Corporation also has industrial sites and buildings which it is prepared to make available to eligible enterprises. Lease, lease-purchase or outright sale of such properties can be considered and, in certain circumstances, the Corporation will consider constructing a facility for the subsequent sale or lease to a prospective client.

Enterprises eligible for SEDCO assistance are those engaged in manufacturing, assembly or certain types of intensive agricultural activity. Ownership can take any form and the size may vary from a one-man proprietorship to a multi-national corporation.

**Alberta.**—The Province of Alberta assists industry through the services of the Alberta Commercial Corporation, a Crown corporation established in 1964. As a means of further strengthening the industrial base in the province, a program of financial assistance is offered to new incoming manufacturers as well as to the expansion programs of existing Alberta concerns, and financial assistance is provided in various forms to industries unable to obtain suitable financing through other sources.

The assistance is intended primarily for small manufacturers and producers and provides the financing of inventories of raw and/or finished materials, the financing or re-

financing of plant equipment, the financing of plant-sites including land and buildings and, at present on an experimental basis, the provision of leased premises under sub-lease.

Under the banner "Assistance to Industry", the service operates on an assist basis. The company and its principals are expected to lay the financial foundations and the Alberta Commercial Corporation then fills requirements not provided for by the banks or other lending institutions. Inventory financing is usually limited to about 75 p.c. of costs; on loans covering equipment or plant-sites, the level is set to suit the purpose and usually runs to about 60 p.c. Inventory financing lends itself to the broadest application among manufacturers and producers, since most of such industries face inventory problems and, when these are solved, operating capital problems usually disappear. Hence the service provides an alternative to the facilities of other lending institutions. In these specific areas, the Corporation is unique in Alberta.

Under inventory financing contracts, the Corporation actually purchases and stores inventory for resale to the Alberta industries being served and all benefits, such as savings through bulk buying, etc., go to the industries. Equipment and building finance contracts are designed to suit the needs and plans of the operating company and the periods over which these contracts extend vary with their respective needs. Repayment is made against a blended schedule of monthly payments allowing the company to budget ahead accordingly.

Service under the program is provided through the Corporation's head office in Edmonton and its southern area office in Calgary. Financing programs are individually dealt with through an experienced staff of professional personnel. Applications for assistance call for suitable back-up material, such as financial statements, etc., which is studied and broadly assessed. Applications are considered for approval by the Board of Directors and, normally, funds are available in four to six weeks. All funds employed call for interest at a favourable rate and security is in the form of clear first charges with suitable involvement of the principals and prudent stabilizing of the company's economic structure for the period of the undertaking.

A further and often equally or even more important function of the Corporation is that of providing guidance to small manufacturers and producers in management problems. Such assistance is usually applied, without cost, with the object of helping the manufacturers lay down strong procedural foundations upon which to build and better attract suitable financing as a result. These operations are directed toward regular professional counselling at the earliest suitable time and as soon as budgets allow.

The services of the Corporation are continuously examined and updated as a means of keeping all aspects of the program fully abreast of the changing needs of industry.

**British Columbia.**—The functions of the Department of Industrial Development, Trade and Commerce are to encourage industry, to expand foreign trade, to investigate matters of economic importance, to collect and publish statistical information and to assist in regional industrial development. In these fields, the Department is organized to assist existing activities and encourage new enterprises by placing its facilities at their disposal, and to co-operate in all problems incidental to establishment. Direct financial assistance is not provided for manufacturers except for the provision of bounties for the production of blister copper or refined copper (not yet exercised in mid-1971) and a bounty for pig iron of British Columbia origin used for steel-making purposes in the province.

The chief means employed by the British Columbia Government to promote industrial development are: (1) to develop the basic provincial infrastructure, including the extension of rail services to northern centres by the provincially owned Pacific Great Eastern Railway, and to develop electric power facilities by the British Columbia Hydro and Power Authority; (2) to provide economic data and analyses relating to markets, production wage costs, etc. (a function of the Economics and Statistics Branch of the Department); and (3) to assist in locating plant sites.

The Department maintains industrial and trade offices in London, England, and in San Francisco and Los Angeles.



# CHAPTER XVI.—CAPITAL EXPENDITURES, CONSTRUCTION AND HOUSING\*

## CONSPECTUS

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*The interpretation of the symbols used in the tables throughout the Year Book will be found on p. vii of this volume.*

This Chapter provides data on the capital expenditures made by all sectors of the Canadian economy on construction and on machinery and equipment, together with summaries of other available statistics for the construction industry. Section 1 shows the amounts spent by each of the various industrial or economic sectors. Section 2 brings together a number of summaries of related series on construction activity—value of work performed by type of structure, value of materials used, salaries and wages paid, numbers employed, and building permits issued. Government aid to house-building and construction of dwelling units are covered in Section 3.

## Section 1.—Capital Expenditures on Construction and on Machinery and Equipment†

A survey carried out early in 1971 indicated that capital expenditures in Canada by business establishments, institutions, governments and house builders would reach approximately \$19,321,000 during that year. This total represented an increase of 10 p.c. over the \$17,640,000 estimated for 1970. Within the 1971 total, outlays for new construction were expected to rise by some 13 p.c. and those for new machinery and equipment by about 3 p.c. over the level of comparable expenditures incurred in 1970. The capital program planned for 1971, if accomplished, would exceed the year-to-year estimated 4-p.c. increase in investment spending for 1970, and would represent a more rapid rise in investment activity than had been experienced on average over the past decade.

\* Except where otherwise noted, prepared (August 1971) in the Business Finance Division, Statistics Canada.

† Capital expenditure figures for 1969 and earlier years are final and those for 1970 are preliminary and subject to revision at a later date. Capital expenditures for 1969 and 1970, as well as intentions for 1971, appear in greater detail in the publication *Private and Public Investment in Canada, Outlook 1971*, available from Information Canada (Catalogue No. 61-205).

With the exception of manufacturing, planned capital spending for 1971 by all major sectors of the economy was expected to be higher than the 1970 level. Spending plans of business indicated an increase of 6 p.c. and social capital outlays by institutions and governments an increase of 7 p.c. The estimated advance in spending on new dwellings was placed at nearly 24 p.c.

This 1971 pattern of investment expenditures was markedly different from that of 1970, in which year manufacturing investment, the most buoyant area, recorded an increase of 22 p.c., business investment advanced about 8 p.c. and there was little change over 1969 in the level of spending by governments and institutions. Indications were that the composition of the 1971 construction program would also differ to a considerable extent from that of 1970; spending for residential construction was expected to rise by about 24 p.c. compared with a decline of 9 p.c. in 1970, although the advance in non-residential construction would remain at about 9 p.c. as in the previous year.

The breakdown of capital spending plans for 1971 by region indicated that outlays would be higher than in 1970 in all major regions, the projected increases being about 21 p.c. in British Columbia, 13 p.c. in Quebec, 9 p.c. in Ontario, 6 p.c. in the Atlantic region, and 1 p.c. in the Prairie region. Considerable variation existed among the individual provinces of the Atlantic region; in Prince Edward Island, capital outlays were expected to rise by 19 p.c. and in Newfoundland by 10 p.c., while outlays in New Brunswick and Nova Scotia were likely to be only moderately above the 1970 level. In the Prairie region, it was anticipated that spending would increase in Saskatchewan by 4 p.c. and in Alberta by 2 p.c. and would decline in Manitoba by 4 p.c.

The spending sectors contributing to the expected strengths and weaknesses varied from region to region. Business investment was expected to increase in Quebec, Ontario and British Columbia but a moderate decline was indicated in the Atlantic and Prairie regions. The most rapid growth was anticipated in British Columbia where plans by business showed an increase of about 23 p.c., largely attributable to higher spending on primary industries and electric power facilities. In Quebec, business spending was expected to rise by more than 11 p.c. to which the most important contributors were the primary industries and communications sectors. In Ontario, where the rise was estimated at 6 p.c., a substantial decline in manufacturing investment prospects more than offset increases indicated by spending on primary industries and electric power facilities, oil and gas pipelines and commercial buildings. In the Atlantic region, an increase in manufacturing in Newfoundland was more than offset by declines in spending on electric power facilities in that province and in manufacturing in Nova Scotia. In the Prairie region, lower levels of spending by the manufacturing and trade, finance and commercial services sectors accounted for much of the decline indicated in business spending in that region. House-building activities were expected to increase in all regions in 1971, as were social capital outlays; in the latter sector, the largest increase of 14 p.c. was indicated in British Columbia, followed by increases of 8 p.c. in Quebec, 6 p.c. in the Prairie region, 5 p.c. in Ontario and 4 p.c. in the Atlantic region.

It should be noted that, in the smaller provinces in particular, individual projects or special conditions in one industry may have an important bearing on the year-to-year trend in total investment. For example, a decline in outlays by the petroleum and coal industry in Nova Scotia, where some large projects reached the completion stage, accounted for most of the reduction in 1971 business investment in that province. On the other hand, the increase expected in Newfoundland was a result of new projects planned by the paper, petroleum and coal industries. It should also be noted that "actual" outlays in 1971 may differ from the stated intentions as a result of developments occurring as the year progresses.

Table 1 shows the trend in capital spending over the years 1953-71 in both current and constant (1961) dollars. Table 2 gives a summary of capital and repair expenditures by economic sector for 1969-71 and Table 3 contains details of the manufacturing, mining, utilities, trade, institutions, finance and commercial services sectors.

### 1.—Capital Expenditures on Construction and on Machinery and Equipment, in Current and Constant (1961) Dollars, 1953-71

NOTE.—Actual expenditures 1953-69; preliminary actual 1970; intentions 1971.

Year	Capital Expenditures						Capital Expenditures as Percentage of Gross National Expenditures	
	Construction		Machinery and Equipment		Totals		Current Dollars	Constant 1961 Dollars
	Current Dollars	Constant 1961 Dollars	Current Dollars	Constant 1961 Dollars	Current Dollars	Constant 1961 Dollars		
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000	p.c.	p.c.
1953.....	3,748	3,981	2,220	2,701	5,968	6,682	23.6	23.2
1954.....	3,818	4,072	1,984	2,386	5,802	6,458	23.0	22.8
1955.....	4,456	4,612	2,075	2,456	6,531	7,068	23.4	22.7
1956.....	5,435	5,360	2,761	3,079	8,196	8,439	26.1	25.0
1957.....	5,880	5,836	2,933	3,108	8,813	8,944	26.8	25.8
1958.....	5,954	5,990	2,534	2,644	8,488	8,634	24.9	24.3
1959.....	5,792	5,803	2,708	2,765	8,500	8,568	23.4	23.2
1960.....	5,519	5,452	2,809	2,829	8,328	8,281	22.0	21.8
1961.....	5,630	5,630	2,662	2,662	8,292	8,292	21.2	21.2
1962.....	5,834	5,777	2,935	2,855	8,769	8,632	20.7	20.7
1963.....	6,156	5,936	3,242	3,084	9,398	9,020	20.7	20.5
1964.....	7,032	6,617	3,948	3,636	10,980	10,253	22.1	21.8
1965.....	8,175	7,254	4,760	4,261	12,935	11,515	23.6	23.0
1966.....	9,281	7,744	5,807	5,076	15,088	12,820	24.6	23.9
1967.....	9,474	7,823	5,874	5,170	15,348	12,993	23.4	23.4
1968.....	9,909	7,982	5,546	4,898	15,455	12,880	21.6	22.1
1969.....	10,824	8,305	6,103	5,255	16,927	13,560	21.5	22.2
1970.....	11,211	8,320	6,429	5,398	17,640	13,718	20.9	21.7
1971.....	12,678	—	6,643	—	19,321	—	—	—

### 2.—Summary of Capital and Repair Expenditures, by Economic Sector, 1969-71

NOTE.—Actual expenditures 1969; preliminary actual 1970; intentions 1971.

(Millions of dollars)

Type of Enterprise and Year	Capital			Repair			Capital and Repair		
	Con-struction	Ma-chinery and Equip-ment	Total	Con-struction	Ma-chinery and Equip-ment	Total	Con-struction	Ma-chinery and Equip-ment	Total
Agriculture and fishing.....1969	249	730	979	96	228	324	345	958	1,303
.....1970	227	636	863	90	231	321	317	867	1,184
.....1971	231	681	912	91	237	328	322	918	1,240
Forestry.....1969	52	54	106	16	60	76	68	114	182
.....1970	49	43	92	15	65	80	64	108	172
.....1971	52	47	99	16	69	85	68	116	184
Mining, quarrying and oil wells.....1969	888	289	1,177	120	244	364	1,008	533	1,541
.....1970	906	321	1,227	117	313	430	1,023	634	1,657
.....1971	1,159	404	1,563	119	323	442	1,278	727	2,005
Manufacturing.....1969	772	1,828	2,600	205	1,101	1,306	977	2,929	3,906
.....1970	989	2,173	3,162	201	1,147	1,348	1,190	3,320	4,510
.....1971	888	2,096	2,984	209	1,199	1,408	1,097	3,295	4,392
Utilities.....1969	1,719	1,586	3,305	353	760	1,113	2,072	2,346	4,418
.....1970	1,962	1,626	3,588	355	797	1,152	2,317	2,423	4,740
.....1971	2,346	1,686	4,032	388	867	1,255	2,734	2,553	5,287
Construction industry.....1969	14	250	264	6	215	221	20	465	485
.....1970	15	250	265	6	215	221	21	465	486
.....1971	15	260	275	7	220	227	22	480	502



## 2.—Summary of Capital and Repair Expenditures, by Economic Sector, 1969-71—concluded

Type of Enterprise and Year	Capital			Repair			Capital and Repair		
	Con- struc- tion	Ma- chinery and Equip- ment	Total	Con- struc- tion	Ma- chinery and Equip- ment	Total	Con- struc- tion	Ma- chinery and Equip- ment	Total
Housing.....1969	3,384	—	3,384	844	—	844	4,228	—	4,228
1970	3,077	—	3,077	858	—	858	3,935	—	3,935
1971	3,806	—	3,806	884	—	884	4,690	—	4,690
Trade (wholesale and retail).....1969	197	313	510	66	70	136	263	383	646
1970	203	319	522	67	63	130	270	382	652
1971	189	311	500	60	62	122	249	373	622
Finance, insurance and real estate.....1969	404	122	526	38	13	51	442	135	577
1970	423	141	564	43	13	56	466	154	620
1971	422	143	565	44	13	57	466	156	622
Commercial services.....1969	103	517	620	27	85	112	130	602	732
1970	128	499	627	23	90	113	151	589	740
1971	137	544	681	22	93	115	159	637	796
Institutional services.....1969	1,134	209	1,343	104	29	133	1,238	238	1,476
1970	1,146	222	1,368	111	29	140	1,257	251	1,508
1971	1,116	227	1,343	124	30	154	1,240	257	1,497
Government departments....1969	1,908	205	2,113	505	78	583	2,413	283	2,696
1970	2,086	199	2,285	524	88	612	2,610	287	2,897
1971	2,317	244	2,561	569	91	660	2,886	335	3,221
<b>Totals.....1969</b>	<b>10,824</b>	<b>6,103</b>	<b>16,927</b>	<b>2,380</b>	<b>2,883</b>	<b>5,263</b>	<b>13,204</b>	<b>8,986</b>	<b>22,190</b>
<b>1970</b>	<b>11,211</b>	<b>6,429</b>	<b>17,640</b>	<b>2,410</b>	<b>3,051</b>	<b>5,461</b>	<b>13,621</b>	<b>9,480</b>	<b>23,101</b>
<b>1971</b>	<b>12,678</b>	<b>6,643</b>	<b>19,321</b>	<b>2,533</b>	<b>3,204</b>	<b>5,737</b>	<b>15,211</b>	<b>9,847</b>	<b>25,058</b>

## 3.—Capital and Repair Expenditures for Certain Economic Sectors, 1969-71

NOTE.—Actual expenditures 1969; preliminary actual 1970; intentions 1971.

(Millions of dollars)

Type of Enterprise and Year	Capital			Repair			Capital and Repair		
	Con- struc- tion	Ma- chinery and Equip- ment	Total	Con- struc- tion	Ma- chinery and Equip- ment	Total	Con- struc- tion	Ma- chinery and Equip- ment	Total
MANUFACTURING									
Food and beverages.....1969	87.9	170.2	258.1	21.0	107.8	128.8	108.9	278.0	386.9
1970	99.0	208.4	307.4	20.6	99.3	119.9	119.6	307.7	427.3
1971	87.9	199.1	287.0	20.2	98.8	119.0	108.1	297.9	406.0
Tobacco products.....1969	1.1	9.8	10.9	2.8	6.1	8.9	3.9	15.9	19.8
1970	2.6	7.7	10.3	2.7	6.4	9.1	5.3	14.1	19.4
1971	2.8	9.0	11.8	2.9	6.2	9.1	5.7	15.2	20.9
Rubber.....1969	11.3	39.1	50.4	2.4	22.7	25.1	13.7	61.8	75.5
1970	26.2	37.6	63.8	2.4	22.7	25.1	28.6	60.3	88.9
1971	32.1	52.5	84.6	2.4	23.6	26.0	34.5	76.1	110.6
Leather.....1969	2.3	6.0	8.3	1.2	4.7	5.9	3.5	10.7	14.2
1970	0.8	3.9	4.7	1.0	4.9	5.9	1.8	8.8	10.6
1971	2.4	4.6	7.0	0.8	5.1	5.9	3.2	9.7	12.9
Textile.....1969	20.5	56.6	77.1	5.3	30.2	35.5	25.8	86.8	112.6
1970	19.6	59.0	78.6	5.6	29.4	35.0	25.2	83.4	113.6
1971	11.9	52.5	64.4	6.9	30.6	37.5	18.8	83.1	101.9

## 3.—Capital and Repair Expenditures for Certain Economic Sectors, 1969-71—continued

Type of Enterprise and Year	Capital			Repair			Capital and Repair		
	Con- struc- tion	Ma- chinery and Equip- ment	Total	Con- struc- tion	Ma- chinery and Equip- ment	Total	Con- struc- tion	Ma- chinery and Equip- ment	Total
MANUFACTURING—concluded									
Knitting mills.....1969	2.9	14.3	17.2	0.7	3.7	4.4	3.6	18.0	21.6
1970	2.6	12.3	14.9	0.9	3.2	4.1	3.5	15.5	19.0
1971	2.6	10.4	13.0	0.7	3.1	3.8	3.3	13.5	16.8
Clothing.....1969	3.8	9.0	12.8	1.3	4.0	5.3	5.1	13.0	18.1
1970	1.0	6.2	7.2	1.3	3.5	4.8	2.3	9.7	12.0
1971	0.7	6.0	6.7	0.9	3.4	4.3	1.6	9.4	11.0
Wood.....1969	42.5	107.9	150.4	9.2	64.3	73.5	51.7	172.2	223.9
1970	36.2	95.8	132.0	7.4	61.6	69.0	43.6	157.4	201.0
1971	25.5	91.4	116.9	8.1	66.6	74.7	33.6	158.0	191.6
Furniture and fixtures.....1969	2.9	9.3	12.2	1.9	4.8	6.7	4.8	14.1	18.9
1970	5.9	7.5	13.4	1.7	4.5	6.2	7.6	12.0	19.6
1971	3.0	8.2	11.2	1.7	4.7	6.4	4.7	12.9	17.6
Paper and allied industries...1969	109.9	266.8	376.7	14.2	200.9	215.1	124.1	467.7	591.8
1970	139.3	372.6	511.9	14.2	200.2	214.4	153.5	572.8	726.3
1971	119.2	333.9	453.1	15.4	212.5	227.9	134.6	546.4	681.0
Printing, publishing and allied industries.....1969	12.5	43.6	56.1	4.3	12.9	17.2	16.8	56.5	73.3
1970	14.2	51.1	65.3	5.3	12.6	17.9	19.5	63.7	83.2
1971	10.3	47.5	57.8	3.9	12.4	16.3	14.2	59.9	74.1
Primary metals.....1969	71.5	221.4	292.9	22.6	267.9	290.5	94.1	489.3	583.4
1970	99.4	292.2	391.6	24.9	321.6	346.5	124.3	613.8	738.1
1971	101.1	364.1	465.2	26.8	345.6	372.4	127.9	709.7	837.6
Metal fabricating.....1969	29.0	103.4	132.4	9.2	50.1	59.3	38.2	153.5	191.7
1970	27.7	99.2	126.9	8.9	52.2	61.1	36.6	151.4	188.0
1971	16.5	96.4	112.9	8.1	51.6	59.7	24.6	148.0	172.6
Machinery.....1969	17.1	41.9	59.0	5.0	19.6	24.6	22.1	61.5	83.6
1970	24.4	46.8	71.2	4.5	19.6	24.1	28.9	66.4	95.3
1971	13.3	47.3	60.6	4.7	19.6	24.3	18.0	66.9	84.9
Transportation equipment....1969	43.6	134.5	178.1	14.0	72.8	86.8	57.6	207.3	264.9
1970	48.2	207.7	255.9	10.9	68.2	79.1	59.1	275.9	335.0
1971	33.2	115.0	148.2	11.8	76.0	87.8	45.0	191.0	236.0
Electrical products.....1969	22.4	65.5	87.9	7.0	34.8	41.8	29.4	100.3	129.7
1970	26.3	81.5	107.8	6.7	34.1	40.8	33.0	115.6	148.6
1971	34.1	89.1	123.2	6.7	34.8	41.5	40.8	123.9	164.7
Non-metallic mineral products1969	37.1	84.0	121.1	7.2	72.1	79.3	44.3	156.1	200.4
1970	47.6	100.0	147.6	5.5	78.8	84.3	53.1	178.8	231.9
1971	18.6	76.1	94.7	6.4	77.6	84.0	25.0	153.7	178.7
Petroleum and coal products..1969	116.9	12.9	129.8	52.1	6.8	58.9	169.0	19.7	188.7
1970	220.6	13.5	234.1	53.6	6.8	60.4	274.2	20.3	294.5
1971	232.6	34.5	267.1	57.9	8.1	66.0	290.5	42.6	333.1
Chemical and chemical prod- ucts.....1969	119.4	116.1	235.5	19.0	96.1	115.1	138.4	212.2	350.6
1970	126.5	132.8	259.3	19.3	98.3	117.6	145.8	231.1	376.9
1971	127.4	114.9	242.3	19.5	99.1	118.6	146.9	214.0	360.9
Miscellaneous.....1969	17.8	49.5	67.3	4.2	18.7	22.9	22.0	68.2	90.2
1970	21.0	35.0	56.0	4.2	18.8	23.0	25.2	53.8	79.0
1971	13.1	44.2	57.3	3.8	19.3	23.1	16.9	63.5	80.4
Capital items charged to oper- ating expenses.....1969	—	266.2	266.2	—	—	—	—	266.2	266.2
1970	—	301.7	301.7	—	—	—	—	301.7	301.7
1971	—	299.5	299.5	—	—	—	—	299.5	299.5
<b>Totals, Manufacturing</b> 1969	<b>772.4</b>	<b>1,828.0</b>	<b>2,600.4</b>	<b>204.6</b>	<b>1,101.0</b>	<b>1,305.6</b>	<b>977.0</b>	<b>2,929.0</b>	<b>3,906.0</b>
1970	<b>989.1</b>	<b>2,172.5</b>	<b>3,161.6</b>	<b>201.6</b>	<b>1,146.7</b>	<b>1,348.3</b>	<b>1,190.7</b>	<b>3,319.2</b>	<b>4,509.9</b>
1971	<b>888.3</b>	<b>2,096.2</b>	<b>2,984.5</b>	<b>209.6</b>	<b>1,198.7</b>	<b>1,408.3</b>	<b>1,097.9</b>	<b>3,294.9</b>	<b>4,392.8</b>

## 3.—Capital and Repair Expenditures for Certain Economic Sectors, 1969-71—continued

Type of Enterprise and Year	Capital			Repair			Capital and Repair		
	Con- struc- tion	Ma- chinery and Equip- ment	Total	Con- struc- tion	Ma- chinery and Equip- ment	Total	Con- struc- tion	Ma- chinery and Equip- ment	Total
MINING									
Metal mines.....1969	295.1	98.2	393.3	35.7	160.9	196.6	330.8	259.1	589.9
1970	296.9	137.8	434.7	29.3	211.5	240.8	326.2	349.3	675.5
1971	495.0	211.1	706.1	30.0	216.8	246.8	525.0	427.9	952.9
Iron mines.....1969	26.4	12.4	38.8	8.4	71.0	79.4	34.8	83.4	118.2
1970	18.9	22.4	41.3	6.7	73.2	84.9	25.6	100.6	126.2
1971	93.9	21.4	115.3	6.5	76.9	83.4	100.4	98.3	198.7
Other metal mines.....1969	268.7	85.8	354.5	27.3	89.9	117.2	296.0	175.7	471.7
1970	278.0	115.4	393.4	22.6	133.3	155.9	500.6	248.7	549.3
1971	401.1	189.7	590.8	23.5	139.9	163.4	424.6	329.6	754.2
Petroleum and gas <sup>1</sup> .....1969	465.3	76.6	541.9	73.7	19.0	92.7	539.0	95.6	634.6
1970	546.3	71.3	617.6	81.6	25.7	107.3	627.9	97.0	724.9
1971	606.4	89.6	696.0	83.7	29.1	112.8	690.1	118.7	808.8
Other mining <sup>2</sup> .....1969	128.1	113.9	242.0	10.4	64.7	75.1	138.5	178.6	317.1
1970	63.3	111.6	174.9	5.6	75.8	81.4	68.9	187.4	256.3
1971	57.9	103.0	160.9	5.5	76.8	82.3	63.4	179.8	243.2
<b>Totals, Mining.....1969</b>	<b>888.5</b>	<b>288.7</b>	<b>1,177.2</b>	<b>119.8</b>	<b>244.6</b>	<b>364.4</b>	<b>1,008.3</b>	<b>533.3</b>	<b>1,541.6</b>
<b>1970</b>	<b>906.5</b>	<b>320.7</b>	<b>1,227.2</b>	<b>116.5</b>	<b>313.0</b>	<b>429.5</b>	<b>1,023.0</b>	<b>633.7</b>	<b>1,656.7</b>
<b>1971</b>	<b>1,159.3</b>	<b>403.7</b>	<b>1,563.0</b>	<b>119.2</b>	<b>322.7</b>	<b>441.9</b>	<b>1,278.5</b>	<b>726.4</b>	<b>2,004.9</b>
UTILITIES									
Electric power.....1969	856.1	546.4	1,402.5	90.9	55.6	146.5	947.0	602.0	1,549.0
1970	985.6	603.8	1,589.4	94.4	62.0	156.4	1,080.0	665.8	1,745.8
1971	1,128.7	639.5	1,768.2	104.4	71.2	175.6	1,233.1	710.7	1,943.8
Gas distribution.....1969	85.4	31.6	117.0	9.7	5.6	15.3	95.1	37.2	132.3
1970	73.0	25.5	98.5	10.2	5.0	15.2	83.2	30.5	113.7
1971	82.9	25.5	108.4	10.7	5.5	16.2	93.6	31.0	124.6
Railway transport.....1969	167.5	118.8	286.3	154.9	240.6	395.5	322.4	359.4	681.8
1970	193.0	133.6	326.6	159.6	248.2	407.8	352.6	381.8	734.4
1971	200.4	117.7	318.1	172.5	267.0	439.5	372.9	384.7	757.6
Urban transit systems.....1969	19.1	18.6	37.7	8.1	28.8	36.9	27.2	47.4	74.6
1970	24.8	17.6	42.4	5.7	28.1	33.8	30.5	45.7	76.2
1971	31.0	29.5	60.5	7.5	34.1	41.6	38.5	63.6	102.1
Water transport and services.....1969	62.0	52.6	114.6	9.0	21.8	30.8	71.0	74.4	145.4
1970	61.0	34.9	95.9	7.6	19.8	27.4	68.6	54.7	123.3
1971	88.6	19.4	108.0	9.4	21.8	31.2	98.0	41.2	139.2
Motor transport.....1969	10.8	88.5	99.3	3.9	96.7	100.6	14.7	185.2	199.9
1970	13.1	76.4	89.5	4.4	93.9	98.3	17.5	170.3	187.8
1971	16.3	68.1	84.4	4.5	95.5	100.0	20.8	163.6	184.4
Grain elevators.....1969	17.6	6.1	23.7	4.7	3.7	8.4	22.3	9.8	32.1
1970	4.4	3.4	7.8	4.5	2.9	7.4	8.9	6.3	15.2
1971	4.3	3.6	7.9	4.7	3.0	7.7	9.0	6.6	15.6
Telephones, telegraph and cable systems.....1969	233.0	452.7	685.7	55.9	198.8	254.7	288.9	651.5	940.4
1970	247.0	474.6	721.6	53.9	221.8	275.7	300.9	696.4	997.3
1971	266.2	562.1	828.3	59.4	240.8	300.2	325.6	802.9	1,128.5
Broadcasting.....1969	29.9	21.2	51.1	2.9	5.7	8.6	32.8	26.9	59.7
(includes estimates for com-1970	34.3	16.7	51.0	2.1	4.9	7.0	36.4	21.6	58.0
munity antenna television) 1971	19.8	28.8	48.6	2.4	5.2	7.6	22.2	34.0	56.2

<sup>1</sup> Includes expenditures on facilities related to petroleum and gas wells and extraction of petroleum from shales or sands, natural gas processing plants and contract drilling for petroleum and gas. <sup>2</sup> Includes coal mines, asbestos, gypsum, salt, miscellaneous non-metal (incl. potash) and quarrying.



## 3.—Capital and Repair Expenditures for Certain Economic Sectors, 1969-71—continued

Type of Enterprise and Year	Capital			Repair			Capital and Repair		
	Con- struc- tion	Ma- chinery and Equip- ment	Total	Con- struc- tion	Ma- chinery and Equip- ment	Total	Con- struc- tion	Ma- chinery and Equip- ment	Total
UTILITIES—concluded									
Other utilities <sup>1</sup> .....1969	237.8	219.2	457.0	13.1	102.5	115.6	250.9	321.7	572.6
1970	325.2	208.7	533.9	13.0	109.9	122.9	338.2	318.6	656.8
1971	507.8	158.7	666.5	12.9	122.7	135.6	520.7	281.4	802.1
Capital items charged to oper- ating expenses.....1969	—	30.1	30.1	—	—	—	—	30.1	30.1
1970	—	31.1	31.1	—	—	—	—	31.1	31.1
1971	—	32.8	32.8	—	—	—	—	32.8	32.8
<b>Totals, Utilities.....1969</b>	<b>1,719.2</b>	<b>1,585.8</b>	<b>3,305.0</b>	<b>353.1</b>	<b>759.8</b>	<b>1,112.9</b>	<b>2,072.3</b>	<b>2,345.6</b>	<b>4,417.9</b>
<b>1970</b>	<b>1,961.4</b>	<b>1,626.3</b>	<b>3,587.7</b>	<b>355.4</b>	<b>796.5</b>	<b>1,151.9</b>	<b>2,316.8</b>	<b>2,422.8</b>	<b>4,739.6</b>
<b>1971</b>	<b>2,346.0</b>	<b>1,685.7</b>	<b>4,031.7</b>	<b>388.4</b>	<b>866.8</b>	<b>1,255.2</b>	<b>2,734.4</b>	<b>2,552.5</b>	<b>5,286.9</b>
TRADE									
Wholesale.....1969	44.5	57.8	102.3	9.1	13.9	23.0	53.6	71.7	125.3
1970	38.1	54.4	92.5	8.1	16.1	24.2	46.2	70.5	116.7
1971	35.8	45.8	81.6	7.7	15.0	22.7	43.5	60.8	104.3
Chain stores.....1969	37.5	70.7	108.2	11.7	12.6	24.3	49.2	83.3	132.5
1970	41.0	73.2	114.2	10.7	12.3	23.0	51.7	85.5	137.2
1971	41.3	75.3	116.6	11.3	12.4	23.7	52.6	87.7	140.3
Independent stores.....1969	35.2	66.6	101.8	18.6	13.4	32.0	53.8	80.0	133.8
1970	24.8	71.7	96.5	17.0	10.8	27.8	41.8	82.5	124.3
1971	21.3	58.0	79.3	12.6	9.9	22.5	33.9	67.9	101.8
Department stores.....1969	11.7	30.8	42.5	7.6	4.1	11.7	19.3	34.9	54.2
1970	31.5	36.2	67.7	6.0	2.9	8.9	37.5	39.1	76.6
1971	25.1	43.2	68.3	4.3	3.3	7.6	29.4	46.5	75.9
Automotive trade.....1969	68.0	58.9	126.9	19.2	25.5	44.7	87.2	84.4	171.6
1970	67.4	55.4	122.8	25.2	20.9	46.1	92.6	76.3	168.9
1971	65.6	61.1	126.7	23.8	21.6	45.4	89.4	82.7	172.1
Capital items charged to oper- ating expenses.....1969	—	28.3	28.3	—	—	—	—	28.3	28.3
1970	—	28.3	28.3	—	—	—	—	28.3	28.3
1971	—	27.6	27.6	—	—	—	—	27.6	27.6
<b>Totals, Trade.....1969</b>	<b>196.9</b>	<b>313.1</b>	<b>510.0</b>	<b>66.2</b>	<b>69.5</b>	<b>135.7</b>	<b>263.1</b>	<b>382.6</b>	<b>645.7</b>
<b>1970</b>	<b>202.8</b>	<b>319.2</b>	<b>522.0</b>	<b>67.0</b>	<b>63.0</b>	<b>130.0</b>	<b>269.8</b>	<b>352.2</b>	<b>622.0</b>
<b>1971</b>	<b>189.1</b>	<b>311.0</b>	<b>500.1</b>	<b>59.7</b>	<b>62.2</b>	<b>121.9</b>	<b>248.8</b>	<b>373.2</b>	<b>622.0</b>
INSTITUTIONS									
Churches.....1969	23.3	2.8	26.1	7.7	1.5	9.2	31.0	4.3	35.3
1970	18.5	1.9	20.4	7.0	1.1	8.1	25.5	3.0	28.5
1971	11.6	1.6	13.2	5.7	0.8	6.5	17.3	2.4	19.7
Universities.....1969	290.0	72.8	362.8	20.8	2.7	23.5	310.8	75.5	386.3
1970	282.3	82.9	365.2	22.6	3.4	26.0	304.9	86.3	391.2
1971	262.3	83.7	346.0	24.8	3.6	28.4	287.1	87.3	374.4
Schools.....1969	606.3	74.4	680.7	45.0	10.0	55.0	651.3	84.4	735.7
1970	605.8	75.0	680.8	43.7	9.6	53.3	649.5	84.6	734.1
1971	584.3	78.0	662.3	53.5	10.4	63.9	637.8	88.4	726.2
Hospitals.....1969	188.3	55.6	243.9	27.5	14.0	41.5	215.8	69.6	285.4
1970	195.9	55.8	251.7	35.1	13.3	48.4	231.0	69.1	300.1
1971	216.4	58.2	274.6	37.4	14.3	51.7	263.8	72.5	326.3

<sup>1</sup> Includes air transport, warehousing, oil and gas pipelines, toll highways and bridges, and provincial and private water systems.

## 3.—Capital and Repair Expenditures for Certain Economic Sectors, 1969-71—concluded

Type of Enterprise and Year	Capital			Repair			Capital and Repair		
	Con- struction	Ma- chinery and Equip- ment	Total	Con- struction	Ma- chinery and Equip- ment	Total	Con- struction	Ma- chinery and Equip- ment	Total
INSTITUTIONS—concluded									
Other institutional services <sup>1</sup> .....1969	26.3	3.6	29.9	3.1	1.2	4.3	29.4	4.8	34.2
1970	43.8	5.7	49.5	2.8	1.1	3.9	46.6	6.8	53.4
1971	41.9	5.2	47.1	2.3	1.2	3.5	44.2	6.4	50.6
<b>Totals, Institutions</b> .....1969	<b>1,134.2</b>	<b>209.2</b>	<b>1,343.4</b>	<b>104.1</b>	<b>29.4</b>	<b>133.5</b>	<b>1,238.3</b>	<b>238.6</b>	<b>1,476.9</b>
1970	<b>1,146.3</b>	<b>221.3</b>	<b>1,367.6</b>	<b>111.2</b>	<b>28.5</b>	<b>139.7</b>	<b>1,257.5</b>	<b>249.8</b>	<b>1,507.3</b>
1971	<b>1,116.5</b>	<b>226.7</b>	<b>1,343.2</b>	<b>123.7</b>	<b>30.3</b>	<b>154.0</b>	<b>1,240.2</b>	<b>257.0</b>	<b>1,497.2</b>
FINANCE									
Banks.....1969	28.0	26.6	54.6	7.0	4.2	11.2	35.0	30.8	65.8
1970	33.6	30.0	63.6	10.1	3.7	13.8	43.7	33.7	77.4
1971	34.7	35.9	70.6	11.0	3.6	14.6	45.7	39.5	85.2
Insurance, trust and loan com- panies.....1969	25.7	50.3	76.0	4.0	2.1	6.1	29.7	52.4	82.1
1970	37.0	68.2	105.2	5.8	2.2	8.0	42.8	70.4	113.2
1971	19.7	55.7	75.4	4.7	2.2	6.9	24.4	57.9	82.3
Other finance <sup>2</sup> .....1969	349.9	45.3	395.2	27.1	6.6	33.7	377.0	51.9	428.9
1970	351.7	43.0	394.7	27.5	7.0	34.5	379.2	50.0	429.2
1971	367.9	51.5	419.4	28.5	7.4	35.9	396.4	58.9	455.3
<b>Totals, Finance</b> .....1969	<b>403.6</b>	<b>122.2</b>	<b>525.8</b>	<b>38.1</b>	<b>12.9</b>	<b>51.0</b>	<b>441.7</b>	<b>135.1</b>	<b>576.8</b>
1970	<b>422.3</b>	<b>141.2</b>	<b>563.5</b>	<b>43.4</b>	<b>12.9</b>	<b>56.3</b>	<b>465.7</b>	<b>154.1</b>	<b>619.8</b>
1971	<b>422.3</b>	<b>143.1</b>	<b>565.4</b>	<b>44.2</b>	<b>13.2</b>	<b>57.4</b>	<b>466.5</b>	<b>156.3</b>	<b>622.8</b>
COMMERCIAL SERVICES									
Laundries and dry cleaners...1969	1.5	6.9	8.4	1.0	4.3	5.3	2.5	11.2	13.7
1970	1.9	6.2	8.1	1.1	4.3	5.4	3.0	10.5	13.5
1971	1.6	5.5	7.1	0.9	3.6	4.5	2.5	9.1	11.6
Motion picture theatres.....1969	1.2	2.5	3.7	3.0	1.1	4.1	4.2	3.6	7.8
1970	4.2	4.5	8.7	2.0	0.9	2.9	6.2	5.4	11.6
1971	2.3	2.7	5.0	1.4	0.8	2.2	3.7	3.5	7.2
Hotels.....1969	40.5	18.4	58.9	15.9	9.0	24.9	56.4	27.4	83.8
1970	60.9	17.9	78.8	14.2	8.1	22.3	75.1	26.0	101.1
1971	87.2	17.7	104.9	14.2	7.8	22.0	101.4	25.5	126.9
Other commercial services <sup>3</sup> ...1969	60.4	488.9	549.3	7.2	70.4	77.6	67.6	559.3	626.9
1970	60.7	470.8	531.5	5.9	76.2	82.1	66.6	547.0	613.6
1971	45.9	518.3	564.2	5.5	80.8	86.3	51.4	599.1	650.5
<b>Totals, Commercial Services</b> .....1969	<b>103.6</b>	<b>516.7</b>	<b>620.3</b>	<b>27.1</b>	<b>84.8</b>	<b>111.9</b>	<b>130.7</b>	<b>601.5</b>	<b>732.2</b>
1970	<b>127.7</b>	<b>499.4</b>	<b>627.1</b>	<b>23.2</b>	<b>89.5</b>	<b>112.7</b>	<b>150.9</b>	<b>588.9</b>	<b>739.8</b>
1971	<b>137.0</b>	<b>544.2</b>	<b>681.2</b>	<b>22.0</b>	<b>93.0</b>	<b>115.0</b>	<b>159.0</b>	<b>637.2</b>	<b>796.2</b>

<sup>1</sup> Includes privately operated social and welfare institutions.<sup>2</sup> Mainly expenditures of real estate companies engaged in developing, owning and leasing properties, and may include outlays for multi-purpose developments with such facilities as theatres, stores, hotel accommodation, etc.<sup>3</sup> Includes services to business, certain recreational and personal services and such miscellaneous services as trade and exhibition associations.

A summary of the capital expenditures in each province for the years 1969 to 1971 is given in Table 4. Such expenditures represent gross additions to the capital stocks of the province and are a reflection of economic activity in the area, although the actual production of these assets may generate major employment and income-giving effects in other regions.

**4.—Capital and Repair Expenditures, by Province, 1969-71**

NOTE.—Actual expenditures 1969; preliminary actual 1970; intentions 1971.

(Millions of dollars)

Province or Territory and Year	Capital			Repair			Capital and Repair		
	Con- struc- tion	Ma- chinery and Equip- ment	Total	Con- struc- tion	Ma- chinery and Equip- ment	Total	Con- struc- tion	Ma- chinery and Equip- ment	Total
Newfoundland.....1969	284	111	395	40	80	120	324	191	515
1970	392	120	512	49	82	131	441	202	643
1971	459	106	565	48	88	136	507	194	701
Prince Edward Island.....1969	26	18	44	8	7	15	34	25	59
1970	34	20	54	9	8	17	43	28	71
1971	43	21	64	9	8	17	52	29	81
Nova Scotia.....1969	398	154	552	77	67	144	475	221	696
1970	394	181	575	78	74	152	472	255	727
1971	395	190	585	82	77	159	477	267	744
New Brunswick.....1969	229	163	392	58	59	117	287	222	509
1970	260	194	454	67	64	131	327	258	585
1971	290	187	477	68	69	137	358	256	614
Quebec.....1969	2,082	1,294	3,376	614	655	1,269	2,696	1,949	4,645
1970	2,173	1,215	3,388	569	668	1,237	2,742	1,883	4,625
1971	2,538	1,295	3,833	603	693	1,296	3,141	1,988	5,129
Ontario.....1969	3,825	2,482	6,307	817	1,127	1,944	4,642	3,609	8,251
1970	4,046	2,811	6,857	865	1,238	2,103	4,911	4,049	8,960
1971	4,571	2,891	7,462	909	1,301	2,210	5,480	4,192	9,672
Manitoba.....1969	640	261	901	113	134	247	753	395	1,148
1970	582	311	893	119	136	255	701	447	1,148
1971	599	263	862	125	141	266	724	404	1,128
Saskatchewan.....1969	459	296	755	131	126	257	590	422	1,012
1970	350	273	623	130	133	263	480	406	886
1971	399	250	649	138	134	272	537	384	921
Alberta.....1969	1,348	566	1,914	259	226	485	1,607	792	2,399
1970	1,427	527	1,954	271	240	511	1,698	767	2,465
1971	1,445	552	1,997	280	250	530	1,725	802	2,527
British Columbia, Yukon Ter- ritory and Northwest Territories.....1969	1,533	758	2,291	263	402	665	1,796	1,160	2,956
1970	1,553	777	2,330	253	408	661	1,806	1,185	2,991
1971	1,939	888	2,827	271	443	714	2,210	1,331	3,541
<b>Canada.....1969</b>	<b>10,824</b>	<b>6,103</b>	<b>16,927</b>	<b>2,380</b>	<b>2,883</b>	<b>5,263</b>	<b>13,204</b>	<b>8,986</b>	<b>22,190</b>
<b>1970</b>	<b>11,211</b>	<b>6,429</b>	<b>17,640</b>	<b>2,410</b>	<b>3,051</b>	<b>5,461</b>	<b>13,621</b>	<b>9,450</b>	<b>23,101</b>
<b>1971</b>	<b>12,678</b>	<b>6,643</b>	<b>19,321</b>	<b>2,533</b>	<b>3,204</b>	<b>5,737</b>	<b>15,211</b>	<b>9,847</b>	<b>25,058</b>

**Section 2.—Construction Statistics****Subsection 1.—Value of Construction Work Performed**

Statistics of the construction industry are based largely on information received at the same time and from the same sources as the data on capital expenditures that appear in Section 1. The data represent the estimated total value of all new and repair construction performed by contractors, by labour forces of utility, manufacturing, mining and logging firms, and by government departments, home-owner builders and other persons or firms not primarily engaged in the construction industry. Table 5 shows the value of new and repair construction work performed during the period 1962-70 with intentions for 1971, and Table 6 shows the value of such work performed by contractors and others in the years 1967-71.





In Canada's sub-arctic, at Deception Bay 1,200 miles north of Montreal, is being constructed the largest building of its kind in the world for storage of ungraded asbestos. The area of the building is roughly that of five football fields. The asbestos mill in the area, which will be in production in 1972, will produce about 300,000 tons of ungraded fibre a year.

### 5.—Value of New and Repair Construction Work Performed, 1962-71

NOTE.—Actual expenditures 1962-69; preliminary 1970; intentions 1971.

Year	New	Repair	Total	Total Construction as Percentage of Gross National Expenditure
	\$'000,000	\$'000,000	\$'000,000	p.c.
1962.....	5,834	1,509	7,343	17.3
1963.....	6,156	1,559	7,715	17.0
1964.....	7,032	1,630	8,662	17.4
1965.....	8,175	1,754	9,929	18.1
1966.....	9,281	1,954	11,235	18.3
1967.....	9,474	2,146	11,620	17.7
1968.....	9,909	2,305	12,214	17.1
1969.....	10,825	2,382	13,207	16.8
1970.....	11,211	2,412	13,623	16.1
1971.....	12,681	2,534	15,215	..

### 6.—Value of Construction Work Performed, by Contractors and Others, 1967-71

NOTE.—Actual expenditures 1967-69; preliminary 1970; intentions 1971.

(Millions of dollars)

Item	1967	1968	1969	1970	1971
<b>Contract Construction.....</b>	<b>9,245</b>	<b>9,935</b>	<b>10,521</b>	<b>10,889</b>	<b>11,964</b>
New.....	8,075	8,675	9,134	9,476	10,499
Repair.....	1,170	1,260	1,387	1,413	1,465
<b>Other Construction<sup>1</sup>.....</b>	<b>2,375</b>	<b>2,279</b>	<b>2,686</b>	<b>2,734</b>	<b>3,251</b>
New.....	1,399	1,234	1,691	1,735	2,182
Repair.....	976	1,045	995	999	1,069
<b>Totals, Construction.....</b>	<b>11,620</b>	<b>12,214</b>	<b>13,207</b>	<b>13,623</b>	<b>15,215</b>
New.....	9,474	9,909	10,825	11,211	12,681
Repair.....	2,146	2,305	2,382	2,412	2,534

<sup>1</sup> Work done by the labour forces of utilities, government departments and other employers not primarily engaged in the construction industry.

Table 7 gives estimates of total expenditures in Canada on each type of construction for which information is available.

7.—Value of Construction Work Performed, by Type of Structure, 1969-71

NOTE.—Actual expenditures 1969; preliminary 1970; intentions 1971.

Type of Structure	1969				1970				1971			
	New	Repair	Total	New	Repair	Total	New	Repair	Total	New	Repair	Total
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Building Construction</b>												
<b>Residential</b>	3,383,872	843,985	4,227,857	3,077,202	858,176	3,935,378	3,806,100	833,926	4,690,026			
<b>Industrial</b>	680,052	189,083	869,135	813,874	182,073	995,947	819,206	187,908	1,007,114			
Factories, plants, workshops, food canneries	545,811	143,680	689,491	619,768	144,289	764,057	619,768	144,289	764,057			
Mine and mine mill buildings	116,425	25,769	142,194	98,514	22,291	120,809	180,244	22,856	203,100			
Railway stations, offices, roadway buildings	10,606	1,760	12,366	10,510	10,522	21,032	11,699	11,419	23,118			
Railway shops, engine houses, water and fuel stations	7,210	7,855	15,065	6,912	8,344	15,256	7,455	9,344	16,839			
<b>Commercial</b>	954,402	107,439	1,151,841	1,060,189	202,178	1,262,367	1,064,968	232,780	1,298,748			
Warehouses, storehouses, refrigerated storage, etc.	90,230	21,531	111,761	88,235	18,686	106,921	75,724	20,754	96,478			
Grain elevators	7,831	3,282	11,113	3,240	4,164	7,404	4,237	4,638	8,875			
Hotels, clubs, restaurants, catereries, tourist cabins	58,309	19,319	77,628	72,556	17,410	89,966	116,239	18,468	134,707			
Office buildings	444,227	67,770	511,997	535,705	70,300	606,005	502,941	75,740	578,681			
Stores, retail and wholesale	209,300	81,746	291,046	272,683	45,244	317,927	193,835	38,356	232,181			
Garages and service stations	77,729	19,461	97,190	83,196	26,431	109,627	88,453	26,116	114,569			
Theatres, arenas, amusement and recreational buildings	65,347	11,160	76,507	83,604	18,653	102,257	80,906	18,641	99,547			
Laundries and dry-cleaning establishments	1,429	1,140	2,569	1,980	1,240	3,220	2,553	1,067	3,620			
<b>Institutional</b>	1,212,407	122,127	1,334,534	1,221,783	124,089	1,345,872	1,189,507	137,391	1,326,898			
Schools and other educational buildings	833,604	67,800	901,404	849,164	67,857	917,021	807,307	79,930	887,237			
Churches and other religious buildings	23,280	7,653	30,933	18,552	6,093	24,645	5,732	5,732	11,464			
Hospitals, sanatoria, clinics, first-aid stations, etc.	204,988	30,918	235,906	237,855	38,248	276,080	250,218	40,667	290,885			
Other	90,565	16,966	107,531	116,262	11,084	127,346	120,499	11,071	131,570			
<b>Other Building</b>	360,901	111,194	472,095	389,528	108,991	498,519	425,713	108,650	534,363			
Farm buildings (excluding dwellings)	166,041	63,246	229,287	148,920	38,418	187,338	151,898	39,262	191,160			
Broadcasting, radio and television, relay and booster stations, telephone exchanges	54,364	8,759	63,123	52,600	5,117	57,717	51,482	4,742	56,224			
Aeroplane hangars	12,059	3,659	15,718	24,257	1,961	26,258	8,686	1,907	10,593			
Passenger terminals, bus, boat or air	7,356	854	8,210	54,069	2,632	57,261	96,901	2,651	99,552			
Armouries, barracks, drill halls, etc.	2,314	5,756	8,070	2,504	5,421	7,925	2,354	5,467	7,801			
Bunkhouses, dormitories, camp cookeries, bush depots and camps	16,273	4,099	20,372	13,961	3,251	17,212	12,391	3,309	15,700			
Laboratories	22,611	3,077	25,688	32,616	3,283	35,899	40,674	3,528	44,202			
Other	79,853	21,741	101,594	60,021	23,888	83,909	62,247	26,694	88,941			
<b>Totals, Building Construction</b>	6,591,634	1,463,828	8,055,462	6,562,556	1,475,507	8,038,063	7,305,584	1,521,655	8,827,239			

7.—Value of Construction Work Performed, by Type of Structure, 1969-71—concluded

Type of Structure	1969			1970			1971		
	New	Repair	Total	New	Repair	Total	New	Repair	Total
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Engineering Construction</b>									
<b>Marine.....</b>	<b>133,590</b>	<b>31,784</b>	<b>165,374</b>	<b>116,313</b>	<b>28,355</b>	<b>144,668</b>	<b>141,141</b>	<b>30,233</b>	<b>171,374</b>
Docks, wharves, piers, breakwaters.....	64,622	9,327	73,949	52,882	7,762	60,644	66,911	8,023	74,934
Retaining walls, embankments, riprapping.....	21,517	15,504	37,021	19,086	12,007	31,093	21,829	13,298	35,127
Canals and waterways.....	33,664	1,818	35,482	25,408	1,576	27,044	28,108	1,358	29,466
Dredging and pile driving.....	3,892	3,486	7,378	6,773	2,559	9,332	10,031	2,656	12,687
Dyke construction.....	3,645	714	4,359	8,459	1,068	9,557	9,641	684	10,325
Logging booms.....	585	617	1,202	554	676	1,200	789	629	1,418
Other.....	3,665	318	3,983	3,091	2,707	5,798	3,832	3,585	7,417
<b>Road, Highway and Aerodrome.....</b>	<b>972,408</b>	<b>282,849</b>	<b>1,255,257</b>	<b>1,043,060</b>	<b>305,265</b>	<b>1,348,325</b>	<b>1,103,754</b>	<b>335,475</b>	<b>1,438,929</b>
Highway, road and street construction, (includes grading, scraping, oiling, filling).....	940,701	269,567	1,210,268	985,899	290,265	1,276,164	1,010,074	319,059	1,329,133
Parking lots.....	6,585	1,981	8,566	8,580	2,424	11,004	6,569	2,597	9,166
Sidewalks, paths.....	13,774	6,865	20,639	16,806	8,448	25,254	15,792	9,308	25,100
Aerodromes, landing fields, runways, tarmac.....	11,348	4,436	15,784	31,775	4,128	35,903	71,319	4,211	75,530
<b>Waterworks and Sewerage Systems.....</b>	<b>338,995</b>	<b>68,801</b>	<b>397,796</b>	<b>394,731</b>	<b>75,216</b>	<b>469,947</b>	<b>477,920</b>	<b>78,164</b>	<b>556,084</b>
Tile drains, drainage ditches, storm sewers.....	33,162	10,908	44,070	28,258	9,468	37,726	32,014	9,867	41,881
Water mains, hydrants and services.....	83,209	27,746	110,955	99,529	31,779	131,308	112,037	31,714	143,751
Sewerage systems and connections.....	185,753	23,046	208,799	238,202	26,881	265,083	292,223	29,763	321,986
Pumping stations, water.....	20,651	5,791	26,442	23,206	5,796	29,092	35,030	5,618	40,648
Water storage tanks.....	6,220	1,310	7,530	5,446	1,292	6,738	6,616	1,202	7,818
<b>Dams and Irrigation.....</b>	<b>57,065</b>	<b>11,631</b>	<b>68,696</b>	<b>52,457</b>	<b>11,322</b>	<b>63,779</b>	<b>66,362</b>	<b>11,844</b>	<b>78,206</b>
Dams and reservoirs.....	32,086	2,435	34,521	26,002	2,514	28,516	34,619	2,496	37,115
Irrigation and land reclamation projects.....	24,979	9,196	34,175	26,455	8,808	35,263	31,743	9,348	41,091
<b>Electric Power.....</b>	<b>909,736</b>	<b>95,387</b>	<b>1,005,123</b>	<b>1,000,277</b>	<b>98,822</b>	<b>1,099,099</b>	<b>1,102,944</b>	<b>109,575</b>	<b>1,212,519</b>
Electric power generating plants, including water conveying and controlling structures.....	505,724	25,064	530,788	451,192	29,584	480,776	509,284	33,970	543,254
Electric transformer stations.....	37,234	7,682	44,916	71,066	5,491	76,547	107,341	5,464	112,805
Power transmission and distribution lines, trolley wires.....	346,124	56,292	402,416	455,651	55,786	511,437	462,218	61,102	523,320
Street lighting.....	20,654	6,349	27,003	22,378	7,961	30,339	24,101	9,039	33,140
<b>Railway, Telephone and Telegraph.....</b>	<b>314,865</b>	<b>180,440</b>	<b>525,305</b>	<b>376,514</b>	<b>185,474</b>	<b>561,988</b>	<b>383,294</b>	<b>201,631</b>	<b>594,925</b>
Railway tracks and roadbed.....	129,708	115,087	244,795	151,332	114,756	266,138	154,240	123,571	277,811
Signals and interlockers.....	11,279	13,848	25,127	9,554	14,315	23,869	11,692	15,547	27,239
Telegraph and telephone lines, underground and marine cables.....	203,878	51,505	255,383	215,578	56,403	271,981	227,362	62,753	290,115



<b>Gas and Oil Facilities.</b> .....	<b>822,221</b>	<b>143,772</b>	<b>965,993</b>	<b>957,361</b>	<b>141,273</b>	<b>1,098,634</b>	<b>1,188,301</b>	<b>152,293</b>	<b>1,341,594</b>
Gas mains and services.....	113,119	8,456	121,575	114,903	8,196	123,099	167,897	8,525	176,422
Pumping stations, oil.....	6,152	1,881	7,833	7,143	2,457	9,600	34,497	2,654	37,151
Pumping stations, gas.....	25,303	385	25,688	51,533	1,163	52,696	30,143	927	31,070
Oil storage tanks.....	18,064	2,940	21,004	33,444	2,814	36,258	24,816	3,245	28,061
Gas storage tanks.....	7,329	556	7,885	4,537	77	4,614	3,875	76	3,951
Oil pipelines.....	33,882	4,954	38,836	19,157	4,077	23,234	18,708	4,110	22,818
Gas pipelines.....	82,021	2,940	84,961	85,325	2,940	88,265	132,185	3,584	135,769
Oil and gas wells.....	390,651	52,518	443,169	361,139	44,067	405,206	408,916	48,221	457,137
Oil refinery—processing units.....	82,002	47,547	129,549	119,391	48,698	168,089	200,536	52,568	253,104
Natural gas cleaning plants.....	63,698	21,795	85,493	160,789	26,784	187,573	167,728	28,383	196,111
<b>Other Engineering.</b> .....	<b>664,670</b>	<b>103,733</b>	<b>768,403</b>	<b>708,026</b>	<b>90,336</b>	<b>798,362</b>	<b>906,382</b>	<b>93,910</b>	<b>994,292</b>
Bridges, trestles, culverts, overpasses, viaducts.....	187,641	28,662	216,303	171,902	28,451	200,353	210,501	32,462	242,963
Tunnels and subways.....	21,955	1,430	23,385	41,320	601	41,921	49,066	768	49,824
Incinerators.....	81	54	135	2,828	922	3,750	2,514	930	3,444
Park systems, landscaping, sodding, etc.....	26,010	5,329	31,339	21,352	6,114	27,466	25,346	6,073	31,419
Swimming pools, tennis courts, outdoor recreation facilities.....	1,360	888	2,248	14,856	2,079	16,935	21,075	1,874	22,949
Mine shafts and other below surface workings.....	209,574	6,857	216,431	216,121	2,584	218,705	229,544	2,509	232,053
Fences, snowsheds, signs, guard rails.....	30,127	17,187	47,314	30,289	14,107	44,396	36,324	14,869	45,193
Other.....	187,922	43,326	231,248	209,358	35,478	244,836	332,012	34,435	366,447
<b>Totals, Engineering Construction</b> .....	<b>4,233,550</b>	<b>918,397</b>	<b>5,151,947</b>	<b>4,648,739</b>	<b>836,063</b>	<b>5,584,802</b>	<b>5,375,098</b>	<b>1,012,855</b>	<b>6,387,923</b>
<b>Totals, All Construction</b> .....	<b>10,825,184</b>	<b>2,382,225</b>	<b>13,207,409</b>	<b>11,211,325</b>	<b>2,411,570</b>	<b>13,622,895</b>	<b>12,686,882</b>	<b>2,534,480</b>	<b>15,215,162</b>

Principal statistics of the construction industry are shown by province and for contractors, utilities, governments and others in Table 8. The statistics given for Canada as a whole may be considered as relatively accurate but those for individual provinces and by class of builder are approximations only. All estimates given for cost of materials used are based on ratios of this item to total value of work performed, derived from annual surveys of construction work and applied to the total value-of-work figures. Estimates of labour content are similarly based but, in addition, are adjusted to include working owners and partners and their withdrawals. Although the ratios were calculated in some detail by type of industry, still further refinements are required. There are also some difficulties in obtaining the precise location of projects undertaken or to be undertaken by large companies operating in a number of provinces. However, if used with these qualifications in mind, the table provides useful estimates.

**8.—Labour Content, Cost of Materials and Value of Work Performed in Construction, by Province and by Employer, 1969-71**

NOTE.—Actual expenditures 1969; preliminary 1970; intentions 1971.

Province and Year		Labour Content		Cost of Materials Used	Value of Work Performed
		Number	Value		
			\$'000	\$'000	\$'000
<b>Province</b>					
Newfoundland.....	1969	16,038	109,166	140,818	324,341
	1970	18,209	149,895	193,649	440,809
	1971	18,711	171,534	226,402	507,653
Prince Edward Island.....	1969	2,364	10,655	15,088	34,422
	1970	2,133	13,294	18,763	43,433
	1971	2,348	16,209	23,468	52,907
Nova Scotia.....	1969	24,077	161,249	224,847	475,388
	1970	21,542	160,906	221,037	471,723
	1971	19,791	162,137	227,542	477,287
New Brunswick.....	1969	16,992	101,095	136,686	286,731
	1970	17,957	113,228	153,924	326,688
	1971	17,533	122,022	170,349	358,435
Quebec.....	1969	136,816	982,178	1,205,647	2,695,564
	1970	127,481	996,788	1,215,852	2,741,546
	1971	132,031	1,136,767	1,392,589	3,140,757
Ontario.....	1969	207,998	1,650,972	2,119,482	4,643,221
	1970	196,938	1,761,021	2,231,472	4,912,272
	1971	200,102	1,958,643	2,486,744	5,480,735
Manitoba.....	1969	33,314	265,165	328,571	753,603
	1970	30,442	248,249	308,558	701,983
	1971	28,364	253,487	321,559	723,911
Saskatchewan.....	1969	26,288	193,574	267,626	589,994
	1970	20,478	159,449	214,419	480,004
	1971	20,707	177,805	242,640	537,510
Alberta.....	1969	66,444	530,872	682,296	1,607,587
	1970	62,297	565,100	695,781	1,697,943
	1971	57,047	569,164	715,248	1,725,857
British Columbia, Yukon Territory and North-west Territories.....	1969	70,362	636,673	795,423	1,796,558
	1970	64,392	634,710	790,844	1,806,494
	1971	71,344	775,153	963,230	2,210,110
<b>Totals.....</b>	<b>1969</b>	<b>600,693</b>	<b>4,641,599</b>	<b>5,916,484</b>	<b>13,207,409</b>
	<b>1970</b>	<b>561,869</b>	<b>4,802,640</b>	<b>6,044,299</b>	<b>13,622,895</b>
	<b>1971</b>	<b>567,978</b>	<b>5,342,921</b>	<b>6,769,771</b>	<b>15,215,162</b>

**8.—Labour Content, Cost of Materials and Value of Work Performed in Construction,  
by Province and by Employer, 1969-71—concluded**

Employer and Year		Labour Content		Cost of Materials Used	Value of Work Performed
		Number	Value		
			\$'000	\$'000	\$'000
<b>Employer</b>					
Contractors.....	1969	458,112	3,604,895	4,726,663	10,520,829
	1970	429,532	3,745,419	4,840,560	10,888,471
	1971	426,389	4,087,076	5,330,347	11,964,406
Utilities.....	1969	52,596	424,158	584,070	1,170,862
	1970	47,459	421,730	568,335	1,150,844
	1971	54,504	533,732	711,133	1,447,543
Governments.....	1969	57,498	376,089	284,285	829,004
	1970	53,771	384,843	302,097	858,342
	1971	54,111	427,958	337,140	955,363
Others.....	1969	32,487	236,457	321,466	686,714
	1970	31,127	250,648	333,307	725,238
	1971	32,974	294,155	391,151	847,850

**Price Index Numbers of Construction and Capital Goods.**—Reference is made here to Chapter XX, Part IV on Prices. Section 2 of that Part contains index numbers which measure price changes in residential and non-residential building materials and changes in construction wage rates; price indexes of highway construction which express prices paid by provincial governments in contracts awarded for highway construction each year as a percentage of prices paid in 1961; and price indexes of electrical utility construction (distribution systems, transmission lines, transformer stations) which provide an estimate of the impact of price change on the cost of materials, labour and equipment used in constructing and equipping such utilities.

### Subsection 2.—Building Permits Issued

The estimated value of proposed construction is indicated by the value of building permits issued. Figures of building permits are collected from more than 1,400 municipalities across the country and are available for individual municipalities, for metropolitan areas, for provinces and for economic areas in Quebec, Ontario and Manitoba.

The total value of permits issued for building construction in 1970 was \$4,700,159,000, a figure 4.0 p.c. lower than that in 1969. Residential construction values decreased by 4.9 p.c. and, although the institutional and government permit values increased by 2.2 p.c., the over-all non-residential sector was 3.2 p.c. lower, attributable mainly to a drop of 12.3 p.c. in the industrial permit values.

Permit values in Ontario remained unchanged from 1969, those in Prince Edward Island, Quebec and Manitoba increased and those in all other provinces decreased, Nova Scotia and Saskatchewan experiencing the most serious drop of 39 p.c. The value of building permits issued in each province in the years 1969 and 1970 is given in Table 9, in each of 50 municipalities in Table 10 and in each of the 19 metropolitan areas in Table 11. The latter made up 66 p.c. of the 1970 total for Canada.



## 9.—Value of Building Permits Issued, by Province, 1969 and 1970 with Totals for 1966-70

Province and Year	Residential Construction			Non-residential Construction			Total
	New	Repair	Total	Industrial	Com- mercial	Institu- tional and Govern- ment	
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland.....1969	10,940	1,101	12,041	1,025	2,767	13,177	29,010
1970	12,031	1,496	13,527	3,748	6,866	1,662	25,803
Prince Edward Island...1969	2,160	123	2,283	214	1,652	621	4,770
1970	2,318	103	2,421	470	870	3,222	6,983
Nova Scotia.....1969	64,243	2,949	67,192	3,842	21,904	54,957	147,895
1970	52,332	2,945	55,277	4,112	18,325	11,661	89,375
New Brunswick.....1969	22,906	2,071	24,977	11,389	10,796	37,327	84,489
1970	24,429	2,081	26,510	11,437	13,795	10,704	62,446
Quebec.....1969	407,260	15,324	422,584	128,598	148,084	221,560	920,826
1970	452,048	15,995	468,043	113,111	129,656	218,144	928,954
Ontario.....1969	1,077,806	36,772	1,114,578	297,807	382,683	507,290	2,302,358
1970	1,045,618	33,419	1,079,037	230,560	414,513	578,223	2,302,333
Manitoba.....1969	98,141	2,463	100,604	8,985	40,274	32,715	182,578
1970	77,214	2,470	79,684	19,134	26,784	74,157	199,759
Saskatchewan.....1969	51,373	2,282	53,655	5,200	23,947	14,751	97,553
1970	15,522	1,624	17,146	3,940	13,588	24,841	59,515
Alberta.....1969	242,292	4,494	246,786	46,572	102,679	80,279	476,316
1970	227,950	4,199	232,149	21,915	69,562	97,171	420,797
British Columbia.....1969	373,111	11,379	384,490	63,416	104,369	97,481	649,756
1970	326,476	11,293	337,769	89,255	113,415	63,755	604,194
<b>Totals.....1966</b>	<b>1,518,038</b>	<b>73,963</b>	<b>1,592,001</b>	<b>473,661</b>	<b>736,726</b>	<b>912,702</b>	<b>3,715,090</b>
<b>1967</b>	<b>1,847,510</b>	<b>76,134</b>	<b>1,923,644</b>	<b>424,947</b>	<b>677,001</b>	<b>1,042,241</b>	<b>4,067,833</b>
<b>1968</b>	<b>2,317,587</b>	<b>88,045</b>	<b>2,405,632</b>	<b>530,670</b>	<b>696,203</b>	<b>1,143,210</b>	<b>4,775,715</b>
<b>1969</b>	<b>2,350,232</b>	<b>78,958</b>	<b>2,429,190</b>	<b>567,048</b>	<b>839,155</b>	<b>1,060,158</b>	<b>4,895,551</b>
<b>1970</b>	<b>2,285,938</b>	<b>75,625</b>	<b>2,311,563</b>	<b>497,682</b>	<b>807,374</b>	<b>1,083,540</b>	<b>4,700,159</b>

## 10.—Estimated Value of Proposed Construction as Indicated by Building Permits Issued in 50 Municipalities, 1969 and 1970

Province and Municipality	1969	1970	Province and Municipality	1969	1970
	\$'000	\$'000		\$'000	\$'000
<b>Newfoundland—</b>			<b>Quebec—concluded</b>		
St. John's.....	23,107	16,786	Sept Îles.....	6,031	11,834
<b>Prince Edward Island—</b>			Sherbrooke.....	14,932	12,009
Charlottetown.....	3,830	6,158	Trois-Rivières.....	12,829	18,201
<b>Nova Scotia—</b>			<b>Ontario—</b>		
Halifax.....	73,993	29,777	Brampton.....	9,123	14,438
<b>New Brunswick—</b>			Burlington.....	31,906	18,493
Fredericton.....	15,422	11,185	Etobicoke (borough).....	134,839	106,218
Moncton.....	11,505	10,254	Hamilton.....	76,355	70,379
Saint John.....	20,641	25,338	Kitchener.....	38,243	26,101
<b>Quebec—</b>			London.....	99,503	67,606
LaSalle.....	17,126	16,956	London Township.....	1,487	857
Montreal.....	178,908	120,635	Mississauga.....	104,749	98,242
Quebec.....	72,264	29,209	Nepean Township.....	31,468	37,127
St. Laurent.....	16,987	18,573	Oshawa.....	40,396	30,983
Ste. Foy.....	35,262	28,738	Ottawa.....	111,237	205,154
			Thunder Bay.....	10,483	18,099
			Scarborough (borough).....	112,217	126,253
			Toronto.....	233,990	298,703
			Windsor.....	90,411	70,079

**10.—Estimated Value of Proposed Construction as Indicated by Building Permits Issued in 50 Municipalities, 1969 and 1970—concluded**

Province and Municipality	1969	1970	Province and Municipality	1969	1970
	\$'000	\$'000		\$'000	\$'000
<b>Ontario—concluded</b>			<b>Alberta—</b>		
York North (borough).....	170,636	173,405	Calgary.....	172,062	172,910
York (borough).....	19,023	16,780	Edmonton } Jasper Place}.....	169,175	136,661
<b>Manitoba—</b>			Lethbridge.....	17,640	24,193
Fort Garry } St. Boniface } St. James } Winnipeg }	156,000	138,267	Medicine Hat.....	5,382	6,088
			Red Deer.....	7,242	6,496
<b>Saskatchewan—</b>			<b>British Columbia—</b>		
Moose Jaw.....	1,789	2,509	Burnaby District.....	48,485	40,014
Prince Albert.....	2,356	3,246	Richmond Township.....	23,585	37,433
Regina.....	30,342	22,983	Surrey District.....	24,811	27,069
Saskatoon.....	41,937	13,717	Vancouver.....	108,965	75,459
			Victoria.....	38,553	22,273

<sup>1</sup> Metropolitan Corporation of Greater Winnipeg, annexation.

<sup>2</sup> Jasper Place included with Edmonton following

**11.—Estimated Value of Building Permits Issued in Metropolitan Areas, 1969 and 1970**

Metropolitan Area	1969	1970	Metropolitan Area	1969	1970
	\$'000	\$'000		\$'000	\$'000
St. John's <sup>1</sup> .....	23,107	16,786	London.....	102,051	69,107
Halifax.....	100,375	45,874	Windsor.....	90,411	81,388
Saint John.....	21,232	25,565	Winnipeg.....	156,000	138,267
Quebec.....	170,335	117,446	Regina.....	30,342	22,983
Montreal.....	480,499	430,300	Saskatoon.....	41,937	13,717
Ottawa-Hull.....	167,487	334,555	Calgary.....	172,062	172,910
Toronto.....	907,359	926,854	Edmonton.....	196,372	136,661
Hamilton.....	128,147	105,477	Vancouver.....	338,211	285,037
Kitchener.....	86,327	75,460	Victoria.....	77,191	53,980
Sudbury.....	57,093	46,743			

<sup>1</sup> Although this is a metropolitan area, only St. John's proper is included in the building permits survey.

## Section 3.—Housing\*

### Subsection 1.—Government Aid to House-Building

**Federal Assistance.**—The role of the Federal Government in housing has expanded progressively since the introduction of the first continuing statute in 1935. Although the Government originally entered the housing field in 1918 when it made money available to the provinces for re-lending to municipalities for housing purposes, the first general piece of federal housing legislation was the Dominion Housing Act passed in 1935. This was followed by the National Housing Acts of 1938 and 1944, culminating in 1954 with the present National Housing Act, defined as "an Act to promote the construction of new houses, the repair and modernization of existing houses and the improvement of housing and living conditions". Central Mortgage and Housing Corporation (CMHC), a Crown agency incorporated by Act of Parliament in 1945, administers the National Housing Act and co-ordinates the activities of the Federal Government in housing. The Corporation has the authority and responsibility for a variety of functions affecting housing in its long-

\* Prepared (August 1971) in the Information Division, Central Mortgage and Housing Corporation, Ottawa.

term outlook as well as in its immediate requirements. It is empowered to act as an insurer of mortgage loans, as a lender or investor of public funds, as a guarantor and as an owner of property and other assets. It also acts as a research agency in fields associated with housing and assists provinces and municipalities in many aspects of urban growth. In general, the Government, through the successive Housing Acts, has attempted to stimulate and supplement the market for housing rather than assume direct responsibilities that rightfully belong to other levels of government or that could be borne more effectively by private enterprise. In each case the aim has been to increase the flow of mortgage money and to encourage lenders to make loans on more favourable terms to prospective home owners. Close to half of the country's present stock of approximately 6,000,000 houses have been built since the first covering legislation was enacted; about one third of these were financed in one way or another under the Housing Acts.

Under the terms of the National Housing Act, 1954 and its subsequent amendments, as now set out in RSC 1970, c. N-10, the Federal Government is active in many ways.

*Loan Insurance.*—Insured mortgage loans may be made for both home-ownership and for rental housing. They are normally available from approved lenders to individual home-owner applicants, to builders constructing houses for sale or for rent and for some special groups, such as co-operative housing associations and farmers. Insured loans are also available for the purchase, improvement, refinancing or sale of existing dwellings.

Prior to June 1969, the maximum interest rate on insured loans was restricted to  $2\frac{1}{4}$  p.c. above the long-term Government bond rate adjusted quarterly to the nearest one eighth of one per cent. Amendment to the National Housing Act, approved June 27, 1969, removed this restriction from all but home improvement loans, thus allowing the NHA interest rate to find its own level in relation to the open market.

Upon application, the borrower pays CMHC a fee of \$35 per unit to help defray expenses incurred in the examination of plans and specifications, in the determination of lending values and in compliance inspections during construction. An approved lender requires evidence that a home owner or home purchaser is providing 5 p.c. of the value of the house from his own resources. For the home owner this equity may be in the form of cash or a combination of cash, land and labour; for the home purchaser it may be in cash or labour. The regulations require that gross debt service—the ratio of repayments of principal and interest plus municipal taxes to the income of the borrower—should not exceed 27 p.c., although instances involving higher ratios may be considered on their merits. The borrower pays an insurance fee which is added to the amount of the loan and is repaid over the term of the mortgage; the fee ranges from  $\frac{7}{8}$  p.c. to  $1\frac{1}{4}$  p.c. of the loan, according to type of unit and time of mortgage advances.

Loans for new home-ownership may be up to 95 p.c. of the first \$20,000 of lending value plus 80 p.c. of the remainder to a maximum loan of \$25,000. For rental housing, loans may be for 90 p.c. of lending value. Loan maxima vary with the type of rental housing but cannot exceed those set for similar dwellings built for home-ownership. Current maxima are: single family units \$25,000; apartment multiple units \$18,000 per unit; and hostels \$7,000 per person accommodated. Loans for existing houses may be 95 p.c. of the lending value, up to a maximum amount of \$18,000 per housing unit. The repayment period may be up to 40 years for new home-ownership and rental housing. For existing home-owner dwellings this period is 40 years or the remaining life of the building whichever is the lesser.

*Direct Loans.*—CMHC may make direct loans for both home-ownership and rental housing where, in the opinion of the Corporation, loans are not available through approved lenders. Loans are made to any eligible home-owner applicant but direct loans to builders are normally subject to a requirement that the houses be pre-sold to satisfactory purchasers. By the end of 1970, direct lending by the Corporation totalled approximately \$4,203,397,000.

CMHC may make loans to any organization, corporation or individual to assist in financing the construction of low-rental housing projects or in the purchase of existing buildings and their conversion into low-rental housing projects. In addition to self-



contained units, developments undertaken may include hostel or dormitory accommodation for elderly and low-income individuals. Loans may be up to a maximum of 95 p.c. of the lending value established by CMHC. The period for repayment may not exceed the useful life of the project and in any case may not be for more than 50 years. The interest rate is established by Order in Council. Plans and specifications for such projects as well as financing and operating arrangements must be approved by the Corporation.

Since December 1960, the National Housing Act has provided financial assistance for the elimination or prevention of water and soil pollution. CMHC is authorized to make a loan to a province, municipality or a municipal sewerage corporation for the purpose of assisting in the construction or expansion of a sewage treatment project. The loan may not exceed two thirds of the cost of the project and the maximum repayment term is 50 years from date of completion. The interest rate is prescribed by the Governor in Council. The agreement covering the project contains a condition whereby 25 p.c. of the loan principal and 25 p.c. of the accrued interest will be forgiven for projects completed to the satisfaction of CMHC on or before Mar. 31, 1975. Where construction is not completed before that date, 25 p.c. of the loan advanced or warrantable by construction progress at that date, plus 25 p.c. of the accrued interest on advances, may be forgiven.

Long-term loans are available to a province or its agency, a municipality or its agency, a hospital, a school board, a university or college, a co-operative association or a charitable corporation for the purpose of assisting in the construction of a student housing project, or the acquisition of existing buildings and their conversion into a student housing project. In all cases, the government of the province concerned must approve the loan. CMHC may lend up to 90 p.c. of the project cost, subject to maximum amounts as follows: \$25,000 per new unit; \$18,000 per self-contained unit or existing housing unit, and \$7,000 per person housed in dormitory or hostel accommodation. The term of the loan may not exceed 50 years. The interest rate is prescribed by the Governor in Council.

*Guarantees.*—CMHC is authorized to give a limited guarantee to banks or approved instalment credit agencies in return for an insurance fee paid by the borrower on loans made for additions, repairs and alterations to existing houses and apartments. A home improvement loan and the balance owing on any existing NHA home improvement loan on the property may not exceed \$4,000 for a one-family dwelling or \$4,000 for the first unit of a duplex, semi-detached or multiple-family dwelling, plus \$1,500 for each additional unit. Loans are repayable in monthly instalments over a period not exceeding 10 years. The maximum rate of interest is restricted to  $2\frac{1}{4}$  p.c. above the long-term Government bond rate adjusted quarterly to the nearest one eighth of one per cent.

*Public Housing.*—Under the National Housing Act and complementary provincial legislation, the Federal Government and the government of a province may enter into a partnership agreement to build rental housing for families and individuals of low income or to purchase and rehabilitate existing housing for this purpose. Projects may include hostel or dormitory accommodation in addition to self-contained units. The Federal Government pays up to 75 p.c. of the capital costs and the provincial government the remainder, although the latter may call upon the municipality concerned to bear a portion of the provincial share. Rents for units in federal-provincial projects are related to the tenant's family income and size of family. Operating deficits are shared on the same contractual basis as the capital costs.

As an alternative method of producing public housing, the CMHC is empowered to make long-term loans to a province, or to a municipality or public housing agency with the approval of the province, for the provision of housing accommodation. Projects may consist of new construction or existing buildings and include dormitory and hostel accommodation as well as self-contained family units. Loans may be up to 90 p.c. of the total costs as determined by CMHC and for a term as long as 50 years but not in excess of the useful life of the development. The maximum that may be borrowed for a fully serviced apartment is \$18,000, and for hostels or dormitories \$7,000 for each person accommodated.

For a house, the maximum is \$25,000. The interest rate is set by the Governor in Council. Where this alternative is selected, federal grants may be made covering up to 50 p.c. of losses incurred in the operation of public housing projects, for a period of up to 50 years but not exceeding the useful life of the project.

*Urban Renewal.*—Federal grants and loans are available under the Act to assist provinces and municipalities undertaking programs of urban renewal. CMHC, with Federal Government approval, may arrange with a municipality to undertake a study to identify blighted areas, determine housing requirements and provide data upon which an orderly program of conservation, rehabilitation and redevelopment can be based. The federal contribution may be as much as 75 p.c. of the cost. The legislation also authorizes federal contributions equal to one half of the costs of preparing an urban renewal scheme setting out proposals for urban renewal action, a similar cost-sharing arrangement for the implementation of a scheme, and loans up to two thirds of the provincial or municipal share of the cost of carrying out an urban renewal scheme. Loans may be for 15 years at an interest rate prescribed by the Governor in Council. To encourage the improvement and conservation of housing meeting minimum standards of construction, loans are available for the sale, purchase or refinancing of existing housing in urban renewal areas not designated for demolition.

Activity under the urban renewal provisions of the National Housing Act was restricted in 1969 following the report of the Task Force on Housing and Urban Development. The report expressed strong reservations about existing approaches to urban renewal and made specific recommendations for the future. As a result of this report, an in-depth study was undertaken with a view to formulating a new federal policy for urban assistance. Preliminary findings indicated that, in the next decade, urban assistance would be based on very different principles to those used in the past. In August 1969 a suspension of federal approval of new projects was put into effect. As an interim measure negotiations were undertaken to permit at least partial implementation of a small number of projects.

*Land Assembly.*—The Federal Government and the government of a province may enter into an agreement to provide for a land assembly project which involves the development of raw land for housing purposes. The Federal Government pays up to 75 p.c. of the cost and the provincial government the remainder. The latter may call upon the municipality concerned to bear a portion of the provincial share. In addition, loans equal to 90 p.c. of the cost of assembling and servicing land for public housing or general housing purposes are available at a preferential interest rate to provinces, municipalities and their agencies.

*CMHC Building.*—The Corporation may construct and administer housing and certain other buildings on its own account and for other government departments and agencies. Its responsibilities include the provision of architectural and engineering designs, the calling of public tenders and the administration of construction contracts—including any necessary on-site surveying and engineering. On such contracts, the Corporation carries out full architectural and engineering inspections.

*Research.*—CMHC is concerned with building technology in the formulation of standards for housing construction, in the use of suitable materials and in the development of new building techniques. The Corporation has no laboratory facilities but has direct experience of performance in the field and seeks the advice of specialists in various agencies and departments of the Federal Government in such matters. Research into the factors affecting housing is concerned with the measurement of the demand for new housing, the volume of new housing built and the supply of mortgage money for house construction. The Corporation also co-ordinates and publishes statistical information on housing. Funds provided under the National Housing Act support the activities of the Canadian Housing Design Council, the Community Planning Association of Canada and the Canadian Council on Urban and Regional Research.

*Other Federal Legislation.*—The Farm Credit Act, 1959 (RSC 1970, c. F-2) provides for federal long-term loan assistance for housing as well as for other farm purposes (see pp. 540-541); the Veterans' Land Act, 1942 (RSC 1970, c. V-4) provides a form of loan and grant assistance to veterans for housing and other purposes (see pp. 366-367); and the Farm Improvement Loans Act, 1944 (RSC 1970, c. F-3) (see pp. 538-539) provides for guarantees for intermediate- and short-term loans made by approved lending agencies to farmers for housing and other purposes. These three statutes are concerned only incidentally with housing.

**Provincial Assistance.**—All provinces have complementary legislation providing for joint federal-provincial housing and land assembly projects and, in addition, most provinces have enacted separate legislation with respect to housing. Details of such assistance may be secured from the provincial government departments listed in the Directory of Sources of Official Information included in Chapter XXVI under the heading of "Housing".

### Subsection 2.—Housing Activities 1961-70

More than 1,600,000 dwellings, or about one quarter of the total housing stock of Canada, were built in the 10-year period ended 1970. This activity, much of it taking the form of rental dwellings, accommodated not only the increase in the number of families and the large increase in non-family households that took place during the period, but also permitted a reduction in the number of doubled-up families. Replacements made possible a reduction in the number of obsolete dwellings and, through improvement and modernization, there was a significant upgrading in the quality of existing dwellings.

This improvement in housing conditions was real, however prosaic the indicators by which it has to be measured. In terms of the quality of the housing inventory, it is reasonably certain that the 1971 Census will show that the number of dwellings considered to be in need of major repair during the period dropped from 254,000 to about 140,000 and that the number of homes lacking modern plumbing was down from 891,000 by more than 50 p.c. However, despite these improvements, the marked increase in shelter costs made housing one of the major subjects of public concern during the second half of the decade. The immediate cause of this situation was the inhibiting effect on housing production of a drop in the rate of new construction in combination with an unusually high rate of immigration. The decrease, which began in the latter half of 1965 and continued for the next 18 months, had its origin in the extraordinary concentration of capital investment in fields other than housing. The effect of this decline was felt by all income groups with an immediate interest in housing but became particularly acute for those in the lower third of the income scale.

These circumstances gave rise to significant developments which are going to influence housing progress for the next 10 years. On the one hand, a series of measures was taken to generate a larger volume of new housing production through the operation of the private market; on the other hand there developed, in the mid-1960s, in response to federal measures, provincial commitments to the housing of low-income people on a scale previously unknown. The measures having to do with the private housing market included the removal of impediments to the full participation of the chartered banks in mortgage lending and the freeing of the interest rate on NHA loans. Also included were: the lifting of outdated restrictions on loan-to-value ratios on conventional mortgage loans; efforts to open up a significant secondary mortgage market; the development of private insurance of conventional mortgage loans; and the extension of NHA-insured lending to existing housing. In 1969, five-year renewable mortgages were permitted under the NHA to widen the choice of arrangements open to lenders and borrowers. The increase in the commitment of provincial governments to the housing of low-income people was related, at least in part, to the enactment in 1964 of new provisions for such housing under the National Housing Act. This commitment found immediate expression in the establishment in virtually every province of provincial housing corporations or similar bodies.

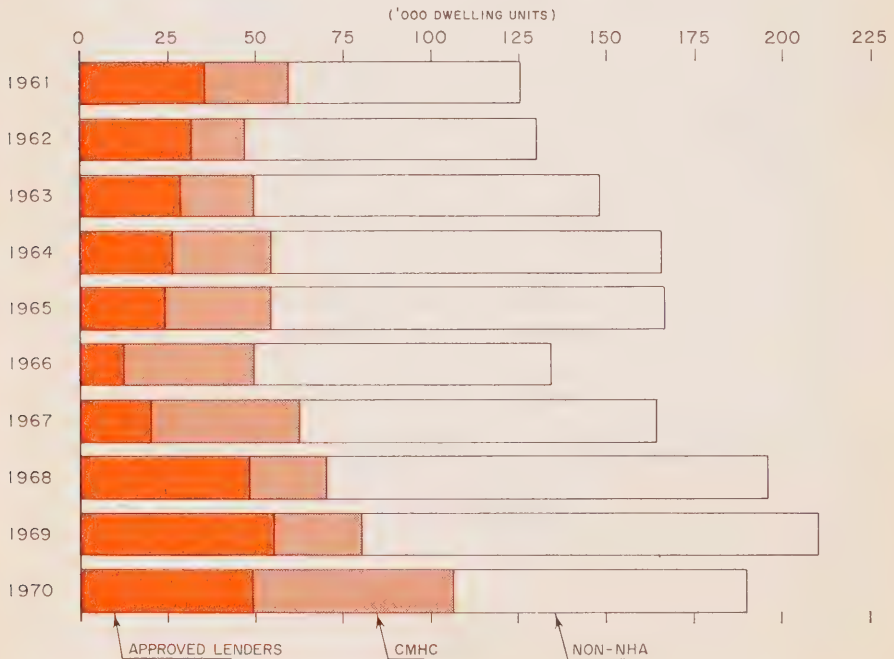


The result of these developments was that, in the late 1960s, a demand for federal funds for low-income housing was generated which could be satisfied only by a reduction in other programs under the National Housing Act. This led to a transfer of public aid from support of the private housing market to the direct aid of low-income groups. During the past three years of the decade, the effect of this decision became clearly apparent. In 1968, approval was given to direct loans involving 15,221 dwelling units and hostel accommodation for 15,978 persons of low income, including students. For the year 1970, these figures were 43,494 units and 20,263 hostel beds. The total direct federal investments for these two years were \$257,000,000 and \$596,400,000, respectively.

Dwelling starts in 1970 totalled 190,528 units, 9.5 p.c. below the 1969 record of 210,415 but still the third highest number on record. The decline in the volume of construction, which involved both single and multiple dwellings, was a result of the noticeable drop in conventional mortgage commitments from the private institutional lenders. As previously indicated, direct lending by the CMHC, particularly in the area involving low-income groups, registered a substantial increase.

Out of the initial housing budget of \$854,000,000, later raised to a record high of \$1,094,000,000, two thirds, or about \$570,000,000 was directed toward the provision of housing for low-income families and persons. The additional \$240,000,000, approved in August 1970, was provided to accelerate the rate of housing starts for modest-income families. As a result of this heavy federal investment in housing, about 47,000 new dwelling units were produced for use by these groups, or nearly twice the output for any previous single year.

#### DWELLING STARTS, BY PRINCIPAL SOURCE OF FINANCING, 1961-70



Direct federal support during 1970 involved 68,178 new and 7,910 existing units for a total of 76,088. Hostel accommodation was also provided for 13,093 persons. The total federal investment in housing for the year was \$965,513,000.

Approved lenders' investment in new housing amounted to \$858,000,000 in 1970, up from \$701,000,000 in 1969, the number of new houses financed rising to 53,029 units from 48,695. Included in this total were loan approvals for 7,402 units of condominium housing. The largest annual increase in approved lenders' activity during the latter part of the decade was attributed to chartered banks, followed by trust companies, while life insurance companies reported a sharp decline. In terms of total investment in housing from 1961 to 1970, trust companies lead by a wide margin.

Housing costs as reflected by the consumer price index showed that the cost of rental accommodation has been rising at a much slower rate in recent years than the cost of home-ownership. Rental costs rose by 18.1 p.c. from the end of 1965 to the end of 1970 as compared with an advance of 40.3 p.c. for home-ownership costs during the same period. Average estimated costs of bungalows financed under the National Housing Act increased by 39.2 p.c. between 1961 and 1970, and the average estimated land costs rose by 51.7 p.c.

## 12.—Dwelling Units Started and Completed, by Type of Financing, 1961-70, and by Region, 1969 and 1970

(Exclusive of the Yukon and Northwest Territories)

Year and Region	Dwelling Units Started					Dwelling Units Completed
	National Housing Act		Conventional Institutional Loans	All Other Financing	Total	
	CMHC Loans	Approved Lenders Loans				
	No.	No.	No.	No.	No.	No.
1961.....	23,852	35,334	38,316	28,075	125,577	115,608
1962.....	15,479	31,790	54,214	28,612	130,095	126,682
1963.....	21,213	28,505	71,983	26,923	148,624	128,191
1964.....	28,728	26,118	85,090	25,722	165,658	150,963
1965.....	30,091	24,172	88,669	23,633	166,565	153,037
1966.....	37,483	12,438	55,208	29,345	134,474	162,192
1967.....	41,814	20,829	64,683	36,797	164,123	149,242
1968.....	22,348	48,542	80,926	45,062	196,878	170,993
1969.....	24,965	55,645	85,680	44,125	210,415	195,826
1970.....	56,941	49,612	40,255	43,720	190,528	175,827
1969						
Atlantic Provinces.....	1,675	1,370	5,262	5,473	13,780	12,099
Quebec.....	7,151	10,138	19,133	6,991	43,413	44,605
Ontario.....	10,029	28,639	29,782	12,996	81,446	80,236
Prairie Provinces.....	3,690	11,508	16,040	8,718	39,956	33,177
British Columbia.....	2,420	3,990	15,463	9,947	31,820	25,709
1970						
Atlantic Provinces.....	3,201	1,185	3,364	4,730	12,480	11,824
Quebec.....	17,994	10,871	8,577	9,676	47,118	36,608
Ontario.....	23,297	22,824	14,436	16,118	76,675	69,331
Prairie Provinces.....	7,148	10,183	6,906	2,702	26,939	31,412
British Columbia.....	5,301	4,549	6,972	10,494	27,316	26,652

**13.—Dwelling Units Started in Metropolitan and Major Urban Areas, 1969 and 1970**

NOTE.—The latest population figures for metropolitan and major urban areas, normally included in this table, were not available at the time of going to press with this Chapter; they will be found in Appendix II.

Area	Dwelling Units Started					
	1969	1970				
		Total	Single De-tached	Semi-detached and Duplex	Row	Apartment; Other
	No.	No.	No.	No.	No.	No.
<b>Metropolitan Areas—</b>						
Calgary.....	9,737	6,740	2,865	462	789	2,624
Edmonton.....	9,807	6,330	1,920	162	1,369	2,879
Halifax.....	3,318	2,343	401	162	10	1,770
Hamilton.....	5,077	4,545	997	175	727	2,646
Kitchener.....	3,841	3,075	849	216	550	1,460
London.....	4,033	2,738	774	172	546	1,246
Montreal.....	23,650	23,017	4,961	1,295	1,935	14,826
Ottawa-Hull.....	7,275	11,345	2,202	358	1,668	7,117
Quebec.....	6,104	6,421	2,158	200	272	3,791
Regina.....	1,689	418	393	4	12	9
Saint John.....	439	498	288	72	—	138
St. John's.....	771	679	475	44	90	70
Saskatoon.....	1,935	259	253	6	—	—
Sudbury.....	1,779	1,961	995	132	217	617
Toronto.....	31,874	30,521	3,249	1,862	1,906	23,504
Vancouver.....	17,690	13,437	4,482	350	839	7,766
Victoria.....	3,744	2,559	743	68	89	1,659
Windsor.....	2,506	1,956	719	108	373	756
Winnipeg.....	9,030	6,661	1,685	767	868	3,341
<b>Totals, Metropolitan Areas.....</b>	<b>144,299</b>	<b>125,503</b>	<b>30,409</b>	<b>6,615</b>	<b>12,260</b>	<b>76,219</b>
<b>Major Urban Areas—</b>						
Brampton.....	541	1,902	317	388	783	414
Brantford.....	487	653	128	4	126	395
Chicoutimi-Jonquière.....	734	860	379	38	81	362
Drummondville.....	139	222	67	9	14	132
Guelph.....	1,300	959	204	22	161	572
Kingston.....	1,471	827	369	14	182	262
Moncton.....	671	377	224	78	10	65
Niagara Falls.....	350	449	291	20	40	98
Oshawa.....	1,832	1,302	363	422	66	451
Peterborough.....	444	507	167	2	60	278
St. Catharines.....	1,235	1,098	493	123	216	266
St. Jean.....	295	159	76	2	—	81
St. Jérôme.....	316	392	198	6	44	144
Sarnia.....	658	323	177	—	87	59
Sault Ste. Marie.....	502	427	237	26	109	55
Shawinigan.....	62	149	67	4	—	78
Sherbrooke.....	1,020	964	240	62	6	656
Sydney-Glace Bay.....	548	362	257	24	81	—
Thunder Bay.....	1,000	722	285	157	24	256
Timmins.....	112	189	115	20	—	54
Trois-Rivières.....	748	1,039	469	20	98	452
Valleyfield.....	93	111	94	8	—	9
Welland.....	439	263	210	6	—	47
<b>Totals, Major Urban Areas.....</b>	<b>14,997</b>	<b>14,256</b>	<b>5,427</b>	<b>1,455</b>	<b>2,188</b>	<b>5,186</b>
All other.....	51,119	50,769	34,913	2,756	2,607	10,493
<b>Canada<sup>1</sup>.....</b>	<b>210,415</b>	<b>190,528</b>	<b>70,749</b>	<b>10,826</b>	<b>17,055</b>	<b>91,898</b>

<sup>1</sup> Excludes the Yukon and Northwest Territories.

**Operations under the National Housing Act.**—NHA mortgage loans amounting to \$1,720,089,000 were approved in 1970 for the provision of 116,294 new units and 12,610 hostel beds, compared with loans of \$1,197,228,000 approved for 79,868 new dwellings and 17,235 hostel beds in 1969. Direct lending by CMHC, for the first time since 1967, was above the volume of insured loans by approved lenders operating under the Act; loans by

the federal agency had a value of \$903,408,000 against \$816,681,000 for approved lenders. Loans made available through private lenders in 1970 amounted to \$857,827,000 for 53,029 dwellings. Chartered banks were the largest source of private funds in 1970, approving loans for 19,347 units. Life insurance company loans represented 4,831 units; trust company loans amounted to \$299,517,000 for 19,234 dwellings; and the remaining 9,617 units resulted from activity in the amount of \$145,377,000 on the part of loan and other companies.

#### 14.—Mortgage Loans Approved by Lending Institutions, by Type of Property and of Loan, 1961-70

Year	New Housing		Existing Houses	Other Property	Total
	NHA Loans	Conventional Loans	Conventional Loans	Conventional Loans	
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000
1961.....	453	333	300	298	1,384
1962.....	412	450	358	311	1,531
1963.....	385	652	430	373	1,840
1964.....	353	812	640	507	2,312
1965.....	320	902	749	581	2,552
1966.....	191	574	471	382	1,618
1967.....	356	745	655	369	2,125
1968.....	832	963	572	335	2,702
1969.....	701	989	662	432	2,784
1970.....	858	539	644	508	2,549

*Borrower and House Characteristics.*—The average family income of purchasers of NHA-financed houses in 1970 was \$11,833. These incomes were 9.5 p.c. higher than the corresponding averages for purchasers in 1969 and appeared to be in line with the general increase in incomes in 1970. As in previous years, relatively few purchasers of NHA houses were drawn from the lower third of the range of family incomes. In 1970 only 0.8 p.c. of the borrowers had family incomes of less than \$5,000 as compared with 1.4 p.c. in 1967.

The average age of purchasers of NHA houses was 33.2 years in 1970, slightly higher than in 1969. In 1970, just over one half of the purchasers had two or more children and 27.2 p.c. had previously been home owners.

The average price of NHA-financed single-family dwellings purchased in 1970, including many started in the previous year, was \$21,895. On these houses, purchasers provided down-payments averaging \$4,206 and undertook monthly payments of \$236 for mortgage, principal, interest and taxes. Compared with 1969, these represented increases of 5.4 p.c. in price and 11.5 p.c. in monthly charges and a decrease of 4.3 p.c. in down-payment. The proportion of monthly charges to income increased from 23.5 p.c. to 23.9 p.c.

As in other years, most of the NHA-financed single-detached houses purchased in 1970 were bungalows, which type represented 74.5 p.c. of the total compared with 72.8 p.c. in 1969. The proportion of split-level dwellings decreased from 21.1 to 18.9 p.c. and that of two-storey dwellings from 6.0 p.c. to 5.7 p.c. Of these dwellings about 86.7 p.c. had one to three bedrooms and the remainder had four or more.

*Aid to Low-Income Groups.*—In 1970, loans amounting to a total of \$571,095,000 were approved to assist in the construction of 45,565 self-contained units of low-rental housing and hostel accommodation for 10,109 persons.

*Home Improvement Loans.*—There was an appreciable drop in both the volume and the value of NHA-guaranteed bank loans for home improvement purposes in 1970 as compared with 1969. Loan approvals during the year numbered 7,057 for \$16,852,000 as against



9,142 and \$22,131,000. At the end of 1970, the outstanding debt on such loans was reported by the banks at \$51,000,000 as compared to \$76,200,000 a year earlier. The Home Improvement Loan Insurance Fund increased by \$155,400 during the year for a total reserve of \$3,722,000 at Dec. 31, 1970.

*Loans for Student Housing Projects.\**—Loans totalling \$37,999,000 were approved in 1970 for 22 student housing projects, involving the construction of 588 self-contained units, 5,016 hostel beds, and the purchase and conversion of existing buildings to provide a further 10 beds. Comparable figures for 1969 were 1,610 new units, 8,913 new hostel beds and conversion of existing buildings to provide 23 units and 557 beds.

#### 15.—Loans Approved for Student Housing Projects, by Province, 1970

Province	New Construction				Conversions				Totals <sup>1</sup>			
	Loans	Units	Hostel Beds	Amount	Loans	Units	Hostel Beds	Amount	Loans	Units	Hostel Beds	Amount
	No.	No.	No.	\$'000	No.	No.	No.	\$'000	No.	No.	No.	\$'000
N.S.....	2	193	936	9,534	—	—	—	—	2	193	936	9,534
Que.....	5	—	728	2,637	—	—	—	—	5	—	728	2,637
Ont.....	7	233	1,576	12,597	1	—	10	33	8	233	1,586	12,630
Man.....	1	—	280	1,588	—	—	—	—	1	—	280	1,588
Sask.....	1	—	209	1,200	—	—	—	—	1	—	209	1,200
Alta.....	3	162	441	4,915	—	—	—	—	3	162	441	4,915
B.C.....	2	—	846	5,495	—	—	—	—	2	—	846	5,495
<b>Canada<sup>2</sup>.....</b>	<b>21</b>	<b>588</b>	<b>5,016</b>	<b>37,966</b>	<b>1</b>	<b>—</b>	<b>10</b>	<b>33</b>	<b>22</b>	<b>588</b>	<b>5,026</b>	<b>37,999</b>

<sup>1</sup> Provincial data are gross; all others are net.

<sup>2</sup> No loans were approved for student housing projects in Newfoundland, Prince Edward Island, New Brunswick or the Yukon and Northwest Territories.

From December 1960, when student housing loans were first authorized, to December 1970, 267 loans totalling \$385,620,000 were approved involving the construction of 5,373 units and 61,539 beds, and the acquisition and conversion of existing buildings to provide 256 units and 2,715 beds. The statutory limit that may be advanced for such loans is \$550,000,000.

*Loans for Municipal Sewage-Treatment Projects.\**—During 1970, 206 loans amounting to over \$72,487,000 were authorized to assist municipalities to undertake sewage-treatment projects, distributed provincially as follows:—

Province*	Loans	Amount	Province*	Loans	Amount
	No.	\$'000		No.	\$'000
Newfoundland.....	2	398	Ontario.....	55	23,138
Prince Edward Island	1	160	Manitoba.....	17	6,068
Nova Scotia.....	13	2,429	Saskatchewan.....	18	4,330
New Brunswick.....	5	844	Alberta.....	32	5,993
Quebec.....	39	13,498	British Columbia....	24	14,000

From December 1960, when assistance for sewage-treatment projects was authorized, to December 1970, 1,729 loans totalling \$395,065,000 were approved.

*Mortgage Marketing.*—Sales of NHA-insured mortgages amounted to \$129,900,000 in 1970 compared with \$127,600,000 in 1969. Because of heavy pressure on the market for long-term funds, auctions were not held by the Corporation between 1966 and 1970; total sales by the Corporation to the end of 1965 amounted to \$308,600,000.

*Urban Renewal.*—As indicated in Subsection 1, p. 812, activity under the urban renewal provisions of the National Housing Act was restricted in 1969. During 1970 no new urban renewal studies were initiated. In 1969, four grants totalling \$117,000 were approved for such studies.

\* Provincial data are gross; all others are net.

Federal contributions totalling \$51,000 were approved during 1970 for the preparation of two urban renewal schemes, both in the Province of Quebec. Also, 12 schemes were approved for implementation supported by a federal contribution of \$15,138,000. Together, these involved the rehabilitation of 313 acres and the displacement of 678 families, and the estimated total cost was \$39,282,000. Locations and acreages were: one in Newfoundland involving 104 acres; one in New Brunswick of two acres; four in Quebec of 424 acres; three in Ontario of 108 acres; one in Manitoba of 25 acres; and one in Alberta of 11 acres.

*Public Housing.*—During 1970, approval was given for 32 federal-provincial housing projects—two in Newfoundland, one in Nova Scotia, 14 in Saskatchewan, two in Alberta, 11 in British Columbia and two in the Northwest Territories. These projects will provide 2,224 dwellings and 154 hostel beds and the federal contribution will be \$22,900,000. To the end of 1970, approval had been given for 19,045 rental units under federal-provincial arrangements. Of these, 16,605 are to be subsidized at rents related to the income of tenants and the remainder will be leased at fixed rents related to dwelling size and at levels sufficient to recover capital costs and to meet operating expenses. The federal 75-p.c. share of the deficit of the subsidized units in 1969 paid in 1970 was \$6,000,000.

Under arrangements with the Provinces of Nova Scotia and Prince Edward Island, assistance may be given under the National Housing Act for co-operative house-building. In 1970, loans were approved for 512 units in Nova Scotia, bringing the total approved since the inception of the program in 1953 to 3,149 units. Since 1960, 219 units have been approved in Prince Edward Island.

In April 1965, agreement was reached between the Federal Government and the Province of Saskatchewan for a joint program to provide housing for metis and enfranchised Indians in sparsely settled regions of northern Saskatchewan. During 1969, 74 units were approved, bringing to 202 the total number approved under this experimental program. The units are located at Air Ronge, Beauval, Buffalo Narrows, Cumberland House, Green Lake, Île à la Crosse, La Loche, Turnor Lake, Dore Lake, Pelican Narrows, Pine House, and St. Walburg. The federal contribution for 1970 was \$188,000. Similar agreements have been reached with the Provinces of Manitoba and Alberta directed primarily to people of Indian origin, under which a total of 50 units were approved in 1970 supported by a federal contribution in the amount of \$431,000.

*Loan-Assisted Projects.*—In 1970, 225 loans amounting to \$225,155,000 were approved for 18,413 units: 16 in one project in Newfoundland; 30 in two projects in Nova Scotia; 586 in 24 projects in New Brunswick; 5,392 in 57 projects in Quebec; 10,385 units in 98 projects in Ontario; 864 in 18 projects in Manitoba; and 862 in 20 projects in Alberta.

*Land Assembly.*—Under the federal-provincial arrangements, four land assembly projects for 425 residential building lots were approved in 1970, located in North Preston, N.S.; and Goulbourn Township, Hamilton and Sudbury in Ontario. During 1969, 816 lots were approved for development and approval was also given for the acquisition and ultimate development for housing purposes of 767 acres of land. In 1970, 32 loans were approved, amounting to \$14,337,000, to assist in the acquisition of land for future housing purposes, one in Prince Edward Island, 10 in Nova Scotia, eight in New Brunswick, 12 in Ontario and one in Alberta. By far the largest project is in Edmonton. It involves a loan of \$3,516,000 for the acquisition of 1,028 acres.

### Subsection 3.—Housing Statistics of the Census

Housing data in considerable detail will be available from the 1971 Census and will be published in census bulletins obtainable from Statistics Canada, Ottawa K1A 0T7 (see p. 204). Types and tenure of occupied dwellings, classified by province and by census metropolitan area, as collected in the abbreviated 1966 Census, are given at pp. 840 and 841 of the 1970-71 Year Book.

# CHAPTER XVII.—LABOUR\*

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*The interpretation of the symbols used in the tables throughout the Year Book will be found on p. vii of this volume.*

## Section 1.—The Government in Relation to Labour

### Subsection 1.—The Canada Department of Labour and the Federal Department of Manpower and Immigration

#### The Canada Department of Labour

The Canada Department of Labour was established in 1900 under the Conciliation Act which provided machinery to aid in preventing and settling labour disputes and required the Department to collect, compile and publish statistical and other relevant information. The Department also assumed the administration of the Fair Wages Policy adopted in the same year for the protection of workmen employed in the execution of Federal Government contracts and on works aided by grants from public funds. Since that time the Department has been charged with the administration of new legislation and has taken on new functions. Its work fell broadly into two main areas—industrial relations and manpower supply—until Jan. 1, 1966, when all manpower activities were transferred to a new Department of Manpower and Immigration (see p. 821).

The legislation now administered by the Canada Department of Labour in the industrial relations area applies to employers, workers and trade unions under federal jurisdiction. The Department is responsible for conciliation procedures in industrial disputes, the investigation of complaints of unfair labour practices, refusals to bargain and violations of legislation, the processing of applications for the certification and decertification of trade unions and the conducting of representation votes. It determines wage rates and hours of work in Federal Government contracts for construction or supplies, and promotes joint

\* Except as otherwise noted, this Chapter has been revised under the direction of the Deputy Minister of the Canada Department of Labour, Ottawa.

labour-management consultation. It also administers legislation to prevent discrimination in employment based on race, religion, colour or national origin and to provide for equal pay for female employees. On July 15, 1971, the Canada Labour Code (RSC 1970, c. L-1) came into force. The Code is divided into five parts, each part absorbing a former Act. The five parts are (former Act in parentheses): Part I, Fair Employment Practices (Canada Fair Employment Practices Act); Part II, Female Employees Equal Pay (Female Employees Equal Pay Act); Part III, Labour Standards (Canada Labour [Standards] Code); Part IV, Safety of Employees (Canada Labour [Safety] Code); and Part V, Industrial Relations (Industrial Relations and Disputes Investigation Act).

For the past 25 years, the Canada Department of Labour has encouraged and assisted in the establishment of labour-management committees in industry and services, a function now administered by the Labour-Management Consultation Branch. There are about 2,700 active committees whose efforts are directed to such subjects as improving work methods, safety, operating efficiency, plant maintenance, eliminating waste, maintaining good morale, promoting educational and training activities, and joint consultation on operational changes brought about by technological change.

Research, involving regular and special surveys and analyses of economic and social trends affecting the labour force, is an important part of the Department's work carried out by the Economics and Research Branch. It studies wages and working conditions, union organization, collective bargaining, industrial relations, labour standards and safety. Through the Women's Bureau, it investigates the problems of women in the labour force. It operates a plan of workmen's compensation for seamen on Canadian ships and arranges workmen's compensation for Federal Government employees. In addition to the publication of statistical reports and the results of research studies, the Department publishes the monthly *Labour Gazette*, maintains records of labour legislation in the provinces and in other countries, operates a labour lending library and provides liaison between the International Labour Organization and the federal and provincial governments.

### **The Department of Manpower and Immigration\***

The fundamental purpose of the Department of Manpower and Immigration is to further the growth of Canada through effective allocation and development of manpower resources in response to the changing needs of the national economy. The Department uses two main channels to ensure that the supply of qualified manpower is adequate to meet the demands of the labour market: (1) counselling, placement and, where necessary, training and relocation of workers, and (2) introduction of new manpower through immigration.

**Operations Canada.**—"Operations Canada" distinguishes the Department's domestic field activities from those at head office and at offices abroad; it comprises five regional headquarters, some 400 Canada Manpower Centres and 80 Canada Immigration Centres. Regional Directors-General, responsible for both manpower and immigration activities in the field, report to the Assistant Deputy Minister, Operations, at head office.

The objectives of Operations Canada are: (1) to provide, through strategically located Canada Manpower Centres, the facilities for an effective employment service for both workers and employers; (2) to help workers utilize their maximum potential through counselling or referral to manpower development programs and obtain jobs which match their skills, capabilities and needs; (3) to assist employers in the recruitment of skilled workers, and offer advice in their manpower planning by providing up-to-date occupational and labour market information; (4) to help workers adapt to economic and technological change by encouraging employers and workers to co-operatively pre-plan, and through the use of departmental training and mobility programs; (5) to provide services for the reception, settlement and job placement of immigrants; and (6) to process international travellers and enforce the Immigration Act and Regulations within Canada, providing facilities to process applications by Canadians wishing to sponsor or nominate relatives.

\* Prepared by the Information Service, Department of Manpower and Immigration, Ottawa.



In the 12-month period ended Mar. 31, 1971, Canada Manpower Centres assisted some 649,000 persons, excluding casual workers, to find gainful employment and referred almost 345,000 clients to full-time or part-time upgrading or skill-development training courses under the Canada Manpower Training Program. In the same period, some 16,000 handicapped clients were referred to federal-provincial rehabilitation assistance programs and about 85,000 workers and trainees received moving and transportation assistance under the Canada Manpower Mobility Program.

**Manpower Division.**—Under the Assistant Deputy Minister, Manpower, this Division provides functional support for the manpower areas of Operations Canada; it consists of three units—the Activities Development Branch, the Manpower Utilization Branch and the Programs Branch.

The Activities Development Branch deals with the demand side of the labour market, providing guidelines in the following main areas: development and utilization of departmental services for employers; specialized information on industrial needs; and organization of Canada Manpower Centres to give effective employment service to employers. It also directs the operations of the Manpower Consultative Service which administers Federal Government assistance to industries undergoing manpower dislocations resulting from technological and other changes.

The Manpower Utilization Branch is concerned with the supply side of the labour market. It formulates policies and guidelines for the provision of employment services to workers and promotes the use of Canada Manpower Centres; develops aptitude and achievement tests for use in counselling and selection; advises on methods of matching jobs and workers; and advises on the manpower utilization of special groups such as youths, handicapped persons, immigrants, migrants and indigenous people. The Branch administers the Vocational Rehabilitation of Disabled Persons Act under which the Federal Government shares equally with participating provinces in the costs of vocational rehabilitation services to disabled persons, and the Operation Retrieval program which is designed to put Canadian employers interested in hiring new university graduates in touch with Canadians studying abroad. The Branch carries on a continuing educational program designed to create a more favourable employment climate for middle-aged and older workers, as well as a program to facilitate and encourage the employment of high school and university students during the summer months.

The Programs Branch deals with the major programs that facilitate the matching of labour market supply and demand. It administers the Canada Manpower Training Program which provides for the training or retraining of adults in schools and industry, and the Canada Manpower Mobility Program which facilitates the movement of workers to areas of job opportunity.

Under the "Canada Works" Special Employment Plan introduced Oct. 14, 1971, the Federal Government announced the allocation of \$578,000,000 to reinforce the economy by providing new jobs for Canadians and to contribute to the betterment of Canadian communities, a major innovative feature of which was the \$150,000,000 Local Initiatives Program which produced more than 90,000 jobs. A Training-on-the-Job Program to provide training for more than 42,000 Canadian trainees, an extension of the Canada Manpower Training Program, special loans to the provinces, a federal work intensive program, loans for agricultural fairs and accelerated loans for housing made up the remainder.

**Immigration Division.**—Under the Assistant Deputy Minister, Immigration, the Home Service Branch of the Division provides procedural guidelines for field operations in Canada relating to admission of immigrants and non-immigrants, apprehension of persons who contravene Canadian laws after being admitted or gaining illegal entry, and removal from the country of those liable to deportation.



*Men already in the labour force are trained to repair or to run the big rigs that are the backbone of the construction industry. This unique course, planned to train about 200 men a year, is given on farm land outside of Montreal under the direction of the Quebec Department of Education and with the financial backing of the federal Department of Manpower.*

## Subsection 2.—Federal Labour Legislation and Provincial Labour Legislation

### Federal Labour Legislation

**Fair Wages Policy.**—The Fair Wages Policy applying to all Federal Government contracts was first set forth in a Resolution of the House of Commons (1900) and later incorporated in an Order in Council and amended from time to time. Wages and hours on contracts for construction are now regulated by the Fair Wages and Hours of Labour Act (RSC 1970, c. L-3), and by the Fair Wages and Hours of Labour Regulations. Hours of work on construction contracts are limited to eight a day and 48 in a week, except in exceptional circumstances approved by the Minister or in such cases as the Governor in Council may prescribe; hours worked in excess of eight in a day or 40 in a week must be paid for at an overtime rate at least equal to one and one half times the rates required under the contract; wages to be paid are those current for the type of work in the district or, if there are no current rates, fair and reasonable rates as determined by the Minister of Labour; in no case shall the rates be less than the minimum hourly rate prescribed by or pursuant to Part IV, Labour Standards of the Canada Labour Code.\*

Wages and hours of work on contracts for equipment and supplies are regulated by Order in Council PC 1954-2029. The hours of such work must be those fixed by the custom of the trade in the district where the work is performed, or fair and reasonable hours. The wages must be current or fair and reasonable but in no event shall they be less than those established by statute or regulation of the province in which the work is being performed.

The Fair Wages and Hours of Labour Regulations and Order in Council PC 1954-2029 each contain a clause prohibiting discrimination against any person in matters of employment because of that person's race, national origin, colour or religion, or because he has made a complaint or given information with respect to such alleged discrimination.

\* See also p. 821.

**Industrial Relations.**—Legislation bringing into effect the Industrial Relations and Disputes Investigation Act was proclaimed on Sept. 1, 1948, revoking the Wartime Labour Relations Regulations in effect since March 1944 and repealing the Industrial Disputes Investigation Act which had been in force from 1907 until suspended by the Wartime Regulations in 1944. It protects proceedings commenced and decisions, orders and certifications made under the wartime legislation in so far as these involve services authorized by the Act. It is now Part V of the Canada Labour Code.\*

The Act applies only to industries within federal jurisdiction, viz., navigation, shipping, interprovincial railways, canals, telegraphs, steamship lines and ferries, both international and interprovincial, aerodromes and air transportation, radio broadcasting stations, and works declared by Parliament to be for the general advantage of Canada or of two or more provinces. However, it provides that provincial authorities if they so desire may enact similar legislation for application to employees within provincial jurisdiction and make mutually satisfactory arrangements with the Federal Government for administration of such legislation by the federal authorities.

In general, its important features provide that employees and employers shall have the right to organize and bargain collectively and that trade unions may be certified as bargaining agents for employee groups. Trade unions and employers are required, upon notice, to bargain collectively in good faith. The Act provides for invoking collective bargaining negotiations and for the mediation of conciliation officers and conciliation boards in reaching collective agreements. Employees may change bargaining agents at times under conditions specified in the Act, which also prescribes conditions affecting the duration and renewal of collective agreements. Collective agreements are required to contain provision for the arbitration of disputes concerning the meaning or violation of such agreements and, where such provision is lacking, application may be made for its establishment. It prohibits unfair labour practices, i.e., the interference with or domination of trade unions by employers or interference, discrimination and coercion in trade union activity. The conditions that must be observed prior to strike and lockout action are set down in the Act. Industrial inquiry commissions may be appointed to investigate industrial matters or disputes. The Minister of Labour is charged with its administration and is directly responsible for the provisions affecting the appointment of conciliation officers, conciliation boards, industrial inquiry commissions, consent to prosecute, and complaints that the Act has been violated or that a party has failed to bargain in good faith. The Canada Labour Relations Board administers provisions concerning the certification of bargaining agents and the writing of a procedure into a collective agreement for the final settlement of disputes concerning the meaning or violation of such agreement.

Detailed statistics concerning activities under the Act may be found in the Annual Report of the Canada Department of Labour.

**Fair Employment Practices.**—The Canada Fair Employment Practices Act, which came into effect on July 1, 1953, prohibits discrimination in employment based on race, colour, religion or national origin. It applies only to industries within federal jurisdiction—those covered by the Industrial Relations and Disputes Investigation Act (see above). This law prohibits acts of discrimination by employers; discrimination by trade unions in regard to membership or employment; the use by employers of employment agencies that practise discrimination; and the use of advertisements or inquiries in connection with employment that express, directly or indirectly, any limitation, specification or preference as to race, colour, religion or national origin. It is now Part I of the Canada Labour Code.\*

**Female Employees Equal Pay.**—The Female Employees Equal Pay Act came into effect on Oct. 1, 1956 and applies to employers and employees engaged in works, undertakings or businesses coming within federal jurisdiction and, in its principal provision,

\* See also p. 821.



prohibits an employer from employing a female for any work at a rate of pay that is less than the rate at which a male is employed by that employer for identical or substantially identical work. It is now Part II of the Canada Labour Code.\*

**Labour Standards.**—The Canada Labour (Standards) Code received Royal Assent on Mar. 18, 1965, when the administration and general provisions of Part V came into effect. It provides, in Parts I to IV which came into force on July 1, 1965, minimum standards with respect to hours of work, minimum wages, annual vacations and general holidays in industries under federal jurisdiction; the Annual Vacations Act 1958 was repealed. This Code is now Part III of the Canada Labour Code.\*

The standard hours of work are eight a day and 40 a week, with maximum hours of 48 a week. Overtime pay at not less than time-and-one-half is required for all hours worked in excess of the standard hours. Permits are required in order to work more than 48 hours a week. Where the nature of the work necessitates irregular distribution of hours of work, the hours may be averaged over a period of two weeks or more.

The minimum wage is \$1.75 an hour for all persons 17 years of age or over and the minimum wage for persons under 17 years of age is \$1.50 an hour. Special rates may be set for persons receiving on-the-job training and for disabled or handicapped persons.

Employees are entitled to a two-week vacation with pay after one year of employment, with vacation pay calculated at 4 p.c. of wages. The general holidays are eight in number and every employee is entitled to a holiday with pay on each of them, or substitutes for them. Pursuant to an amendment to Part IV of the Canada Labour (Standards) Code, the Multi-employer Employment (Longshoring) Regulations have been passed to provide for the granting of pay in lieu of general holidays to longshoremen in multi-employer employment who previously could not qualify for general holiday benefits because they did not have sufficient employment with one employer.

The Canada Labour (Standards) Code has special and transitional provisions. Any person may make a submission (under Sect. 51) for deferment or suspension of Part I (Hours of Work). The Minister may grant deferment or suspension where it can be shown that the application of Part I is or would be prejudicial to the interests of the employees or detrimental to the operation of the business. The Minister's order to defer or suspend may be for a period up to but not exceeding 18 months from the date of the order, and the order may or may not contain conditions on hours. A further deferment or suspension may be made by the Governor in Council but only after there has been an inquiry, and the order of the Governor in Council must contain conditions on hours of work. Regulations have been enacted to carry out its purposes.

**Safety of Employees.**—The Canada Labour (Safety) Code, which received Royal Assent in late 1966 and was proclaimed in effect as of Jan. 1, 1968, is the first general safety legislation to be passed by the Parliament of Canada. Its primary purpose is to ensure safe working conditions for all employees in industries and undertakings under federal jurisdiction. Its main features are that: (1) it provides for all the elements of a complete industrial safety program; (2) it sets out the general obligation of employers and employees to carry out their duties in a safe manner and authorizes the making of regulations for dealing with problems of occupational safety; (3) it does not override but complements other federal laws and provincial legislation, thus strengthening the safety movement; (4) it authorizes the use of advisory committees and special task forces to assist in developing the program, all to be done under continuous consultation among federal and provincial government departments, industry and organized labour; and (5) it provides for research into causes and prevention of accidents and for an extended program of safety education. It is applied through regional safety officers and the federally authorized provincial inspectors. Development of regulations continues. It is now Part IV of the Canada Labour Code.\*

\* See also p. 821.



### Provincial Labour Legislation

Because of the authority given by the British North America Act to the provincial legislatures to make laws in relation to local works and undertakings and in relation to property and civil rights in the province, power to enact labour legislation is largely the prerogative of the provinces. Since it imposes conditions on the rights of the employer and employee to enter into a contract of employment, labour legislation is, generally speaking, law in relation to civil rights. Under this authority, the provincial legislatures have enacted a large body of legislation affecting the employment relationship in such fields as working hours, minimum wages, the physical conditions of workplaces, apprenticeship and training, wage payment and wage collection, labour-management relations, workmen's compensation and other matters. In each province a department of labour or department of labour and manpower (the designations vary) is charged with the administration of labour laws. Legislation for the protection of miners is administered by departments dealing with mines. The workmen's compensation law in each province is administered by a workmen's compensation board appointed by the Lieutenant-Governor in Council.

**Minimum Wages.**—As a means of ensuring adequate living standards for workers, all jurisdictions have enacted minimum wage legislation. These laws vest in a minimum-wage-fixing board or the Lieutenant-Governor in Council authority to establish minimum wages for employees. In most provinces, minimum wage orders now cover almost all employment except farm labour and domestic service; however, farm labourers are covered in Newfoundland and certain farm-related occupations are covered in Ontario. Minimum rates set by the orders apply throughout the province except in Nova Scotia, Quebec and Saskatchewan. Both Nova Scotia and Saskatchewan are divided into two zones for minimum wage-setting purposes. Except in Newfoundland, Nova Scotia and Prince Edward Island, the same rates are set for both sexes. Most jurisdictions also set special minimum rates for young workers.

**Hours of Work.**—Five provinces have general hours-of-work laws. Those of Ontario, Alberta and British Columbia set limits on daily and weekly hours of work. Hours are limited in Alberta and British Columbia to eight a day and 44 a week, and in Ontario to eight a day and 48 a week. The Ontario Act requires, with some exceptions, that one and one half times the regular rate be paid for work done, under permit, beyond the 48-hour limit. The Manitoba and Saskatchewan Acts do not limit daily and weekly hours but require the payment of one and one half times the regular rate if work is continued after eight and 44 hours. Some exceptions are provided for in all five Acts.

**Regulation of Wages and Hours in Certain Industries.**—Apart from general hours-of-work laws, other statutes regulate working hours in some industries. Industrial standards legislation is in effect in Newfoundland, Prince Edward Island, Nova Scotia, New Brunswick, Ontario, Saskatchewan and Alberta. These laws provide that a schedule of wage rates and hours of work agreed upon by a representative group of employees and employers in an industry or trade may, upon approval by the government, be given statutory effect by Order in Council, with the result that such wage rates and hours become the minimum terms of employment for the entire industry or trade in the area. An advisory committee, usually equally representative of employers and employees, is established to assist in enforcing a schedule. This legislation is used fairly extensively in the building trades, the clothing industries, barbering, and a few other industries. In Newfoundland, Nova Scotia and New Brunswick, schedules have been issued only for certain construction trades in some areas. In Ontario, schedules for the garment trades and the fur industry apply throughout the province and a substantial number of schedules apply to various construction trades and to barbering in specified areas.

Under the Quebec Collective Agreement Decrees Act, certain terms of a collective agreement, including those dealing with hours and wages, may be made binding on all employers and employees in the industry concerned in a defined area, provided the parties to the agreement represent a sufficient proportion of the industry. The standards made binding under this procedure are contained in a decree, which has the force of law. Approximately 85 decrees applying to the garment trades, barbering and hairdressing, commercial establishments, garages and service stations, and other industries and services are in effect. A number of these decrees apply throughout the province. Working conditions in the construction industry are governed by decrees under a separate Act—the Construction Industry Labour Relations Act, 1968.

The Construction Industry Wages Act in Manitoba, which applies to both private and public construction work, provides for the setting of minimum rates of wages and maximum hours of work at regular rates for employees in the construction industry, on the recommendations of a board equally representative of employers and employees, with a public member as chairman. Under this Act, annual schedules set the regular work week and hourly rates of wages for various classifications of workers in the heavy construction industry, in the Greater Winnipeg building construction industry, and in rural building construction.

**Annual Vacations and Public Holidays.**—All provinces have annual vacations legislation applicable to most industries. In Prince Edward Island and New Brunswick, workers are entitled to a vacation of one week after a year of service; in Ontario, workers are entitled to a vacation of one week after the first year of employment, and of two weeks after the second and each subsequent year. In Nova Scotia, Quebec, Newfoundland and the four western provinces, the annual paid vacation required by law is two weeks after a year of service and, in Saskatchewan, three weeks after five years of service.

Six provinces—Alberta, British Columbia, Manitoba, Nova Scotia, Ontario and Saskatchewan—have enacted legislation of general application dealing with public holidays. The number of holidays named varies from seven to nine and the provisions for payment also vary.

**Anti-discrimination Laws.**—All provinces have adopted fair employment practices laws forbidding discrimination in hiring and conditions of employment and in trade union membership on grounds of race, colour, religion or national origin, and on grounds of social origin in Newfoundland and Quebec, and political opinion in Newfoundland. The British Columbia, Manitoba, Newfoundland and Quebec Acts also forbid discrimination in these areas on grounds of sex. In addition, in British Columbia, Ontario and Newfoundland, discrimination in employment and trade union membership on grounds of age is prohibited. Nine provinces have provisions in separate equal pay Acts or in human rights or labour standards legislation that forbid discrimination in rates of pay solely on the basis of sex. Quebec does not have equal pay legislation but, as indicated above, forbids discrimination in employment on the basis of sex.

**Accident Prevention.**—Factory or industrial safety Acts in most provinces establish safeguards for the protection of the health and safety of workers in factories and other workplaces with respect to such matters as sanitation, hearing, lighting, ventilation and the guarding of dangerous machinery. Most workmen's compensation boards have developed comprehensive safety regulations. Long-established laws regulating the design, construction, installation and operation of mechanical equipment, such as boilers and pressure vessels, elevators and lifts, and electrical installations, have been revised in recent years in line with technological changes, and legal standards have been set in new fields involving hazards to workers and the public, such as the use of gas- and oil-burning equipment, and radiation-

producing equipment such as laser sources. This legislation also prescribes standards of qualification for workers who install, operate or service such equipment. Laws requiring safety standards to be observed in construction and excavation work are in force in most provinces.

**Labour Relations.**—In all provinces, there is legislation similar in principle to the federal Industrial Relations and Disputes Investigation Act,\* designed to establish harmonious relations between employers and employees and to facilitate the settlement of industrial disputes. These laws guarantee freedom of association and the right to organize, establish machinery (labour relations boards or other administrative systems) for the certification of a trade union as the exclusive bargaining agent of an appropriate unit of employees, and require an employer to bargain with the certified trade union representing his employees. The laws require the parties to comply with the conciliation or mediation procedures laid down in the legislation before a strike or lockout may legally take place, and they also provide that every collective agreement must contain provisions for the settlement of disputes arising out of the agreement, and prohibit strikes and lockouts while an agreement is in effect. All of them prohibit defined unfair labour practices and prescribe penalties. In most provinces, certain classes of employees who are engaged in essential services, such as policemen and firemen, are forbidden to strike and, in lieu of the right to strike, have recourse to final and binding arbitration. There are provisions relating to hospital disputes in seven provinces.

**Certification of Qualified Tradesmen.**—All provinces have apprenticeship laws providing for an organized procedure of on-the-job training and school instruction in designated skilled trades, and statutory provision is made in most provinces for the issuing of certificates of qualification, on application, to qualified tradesmen in certain trades. In some provinces, legislation is in effect making it mandatory for certain classes of tradesmen to hold certificate of competency.

**Changes in 1970.**†—In the field of labour relations, extensive amendments were made to the Alberta Act providing, among other things, for registered trade union and employers' organizations to be legal entities for prosecutions and actions to sue for purposes of the Act. All picketing, except by trade union members or persons authorized by a trade union during a legal strike or lockout, is forbidden. Picketing must be peaceful. Employers' organizations may be accredited as bargaining agents in the construction industry. Five employer organizations in Quebec are recognized in construction decrees under the Labour Relations Act. A British Columbia amendment does not limit such accreditation to the construction industry. Ontario has similar provisions and, in that jurisdiction, employees are entitled to job reinstatement after a legal strike.

Several provinces enacted or amended labour relations legislation in the public sector. In Newfoundland, the Public Service (Collective Bargaining) Act is to be proclaimed, giving public servants, other government employees and hospital employees collective bargaining rights, including the right to strike. The Civil Service Department Act in Quebec created a central agency to co-ordinate administrative services including collective bargaining. Manitoba substituted binding arbitration in place of mediation as the final step in collective bargaining under the Civil Service Act.

Amendments were made to several *minimum wage* Acts, and the general minimum wage rates in eight provinces and the Yukon Territory were increased. Quebec, in orders governing the service industries and the hotel and restaurant industry, is abolishing the zoning system which divided the province into two zones—Greater Montreal and the remainder of the province. As of May 1, 1971, the orders introduce province-wide rates.

\* See also p. 824.

† For 1970 changes in workmen's compensation legislation, see p. 831.



The general hourly minimum rates applying to most types of employment in the various jurisdictions are as follows:—

MINIMUM WAGE RATES FOR EXPERIENCED ADULT WORKERS, JULY 1, 1971

Federal.....	\$1.75 an hour
Newfoundland.....	\$1.25 an hour (men) and \$1 an hour (women)
Prince Edward Island.....	\$1.25 an hour (men) and 95 cents an hour (women)
Nova Scotia.....	\$1.35 and \$1.25 an hour, varying with the zone (men) and \$1.20 and \$1.10 an hour, varying with the zone (women)
New Brunswick.....	\$1.15 an hour; \$1.25 an hour from Sept. 1, 1971; \$1.40 an hour from Mar. 1, 1972; \$1.50 an hour from Jan. 1, 1973
Quebec.....	\$1.45 an hour; \$1.50 an hour from Nov. 1, 1971
Ontario.....	\$1.65 an hour
Manitoba.....	\$1.50 an hour
Saskatchewan.....	\$1.50 an hour (ten cities and a five-mile radius); \$1.40 an hour (elsewhere in province)
Alberta.....	\$1.55 an hour
British Columbia.....	\$1.50 an hour
Northwest Territories.....	\$1.50 an hour
Yukon Territory.....	\$1.50 an hour

Special minimum wage rates set for an industry, occupation or class of employees may be higher or lower than the general rate but in many cases are higher, particularly where a rate is set for a craft or skill.

Ontario amended the Employment Standards Act providing employees with entitlement to a two-week annual vacation with pay after two years of employment rather than after four years. The provision of a one-week vacation after the first year of employment continues in effect. Employees who have completed 12 months of non-continuous employment in any period of 36 months after 1966 are entitled to a vacation.

Annual vacations with pay in the various jurisdictions are as follows:—

ANNUAL VACATIONS WITH PAY PROVISIONS, DECEMBER 1970

<u>Jurisdiction</u>	<u>Length of Annual Vacation</u>	<u>Vacation Pay</u>
Federal.....	2 weeks.....	4 p.c. of annual earnings
Newfoundland.....	2 weeks.....	4 p.c. of annual earnings
Prince Edward Island.....	1 week.....	2 p.c. of annual earnings
Nova Scotia.....	2 weeks.....	4 p.c. of annual earnings
New Brunswick (July 1, 1971)...	2 weeks.....	4 p.c. of annual earnings
Quebec.....	2 weeks.....	4 p.c. of annual earnings
Ontario.....	1 week; 2 weeks after 2 years of service	2 p.c. of annual earnings in first year; 4 p.c. of annual earnings in second year
Manitoba.....	2 weeks.....	Regular pay
Saskatchewan.....	2 weeks; 3 weeks after 5 years of service	1/26th of annual earnings in first four years; 3/52nds of annual earnings after fifth year
Alberta.....	2 weeks.....	Regular pay
British Columbia.....	2 weeks.....	4 p.c. of annual earnings

Ontario enacted legislation requiring employers to give written *notice of termination of employment* in cases of individual and collective dismissal. Quebec also requires notice of mass lay-offs. Five other provinces already have statutory notice requirements regarding individual notice. The Ontario Women's Equal Employment Opportunity Act, 1970, which prohibits discrimination in employment on grounds of sex or marital status, also contains *maternity protection*, including leave of absence and prohibition of dismissal for pregnancy. Two other provincial jurisdictions, British Columbia and New Brunswick, have similar legislation. In the field of *fair employment practices*, Manitoba consolidated two previous Acts (Fair Employment Practices and Fair Accommodation Practices), revising and strengthening the provisions at the same time, to produce the Manitoba Human Rights Act. Five provinces forbid discrimination in employment and trade union



membership on grounds of *sex* (British Columbia, Newfoundland, Quebec, Manitoba and New Brunswick); British Columbia, Ontario and Newfoundland prohibit *age* discrimination in the same areas.

In the *industrial safety* field, the Yukon Territory forged the last link in Canada's chain of elevator safety legislation with the enactment of the Elevator and Fixed Conveyances Ordinance, which is to come into force on a date fixed by the Commissioner. Quebec issued detailed new regulations respecting safety in public buildings (including elevating devices).

The Quebec Workmen's Compensation Commission established an Advisory Committee on Industrial Accidents comparable to the Advisory Council on Labour and Manpower. The Committee, composed of workers' and employers' representatives, is to study and advise the Commission on questions concerning the prevention of occupational accidents and diseases and the medical and social rehabilitation of injured workers.

Four provinces—British Columbia, Manitoba, Ontario and Saskatchewan—amended their mines safety legislation.

Alberta enacted comprehensive Electrical Safety Rules, a Radiation Protection Act and, under the Public Health Act, two important sets of regulations. One is a Laser Code of Practice to protect persons from laser, and the other a schedule of notifiable industrial diseases and provision for notification, inspection and control where such diseases occur.

**Workmen's Compensation.**—In all provinces, legislation is in force providing for payment of compensation to workmen who are injured by accident arising out of and in the course of their employment or who are disabled as a result of a specified industrial disease. To be entitled to benefits, a workman must be employed in an industry covered by the Act at the time of the injury. Compensation is not payable, however, where the disability lasts less than a stated number of days (varying from one to four in the provincial Acts), or where the injury is due to the workman's own misconduct. A workman who is entitled to compensation has no right of action against his employer for injury sustained during employment.

The Acts provide for a compulsory system of collective liability on the part of employers. Industries covered are divided into classes or groups, according to hazard. Employers are required to contribute to the Accident Fund at a rate fixed in accordance with the accident experience of the class or group. Each class is liable for the costs of all accidents occurring in that class.

The laws apply to enumerated employments but the range of industries covered by each Act is very wide. The principal exceptions are farm workers (who are not covered except in Ontario), domestic servants, casual workers, employees of financial, insurance and professional undertakings, employees of non-profit religious or charitable organizations, and workers in certain service industries in most provinces, for example, barber shops and beauty parlours. Small undertakings, i.e., those with fewer than a specified number of employees, are exempted from the Act in some provinces. Excluded employments may generally be brought under the Act on the voluntary application of the employer. Quebec intends to bring all industries except agriculture and domestic service within the scope of the Act by October 1971.

Benefits for disability are based on 75 p.c. of earnings, subject to an annual ceiling. Where disability is permanent, a life pension is paid, irrespective of future earnings. Medical benefits are provided without limitation, regardless of a waiting period, and rehabilitation services are available where necessary. Where death results from an employment injury, fixed monthly payments are made to dependants.

A federal Act provides for compensation for accidents to Federal Government employees according to the scale of benefits provided by the Act of the province in which the employee is usually employed. Seamen who are not under a provincial Workmen's Compensation Act are entitled to compensation under the federal Merchant Seamen Compensation Act.

*Changes in 1970-71.*—The workmen's compensation laws of seven provinces and the Yukon Territory and the federal Merchant Seamen Compensation Act were amended. Newfoundland became the second province (after British Columbia) to make provision for an automatic increase of \$1,000 in the earnings ceiling, when earnings have increased in line with a formula contained in the Act. The first such increase in British Columbia, raising the ceiling from \$6,600 to \$7,600 was effective Jan. 1, 1971.

Almost all the amending Acts raised the maximum annual earnings on which compensation payments are based. The new ceilings, as of the effective date in each case, are: \$7,000 in Newfoundland, New Brunswick and Nova Scotia; \$8,000 in Manitoba; \$9,000 in Ontario; and \$6,000 under the Merchant Seamen Compensation Act.

Higher minimum payments for total disability were established in Newfoundland and Saskatchewan and, as a result of the rise in the Consumer Price Index in 1970, in British Columbia. The new minima, including those fixed under the Merchant Seamen Compensation Act are:—

<i>Province or Act</i>	<i>Permanent Total Disability</i>	<i>Temporary Total Disability</i>
Newfoundland.....	\$130 a month or earnings, if less	\$30 a week or earnings, if less
Saskatchewan.....	\$40 a week	\$40 a week or earnings, if less
British Columbia.....	\$168.92 a month	\$36.57 a week or earnings, if less
Merchant Seamen Compensation Act.....	\$35 a week or earnings, if less	\$35 a week or earnings, if less

Changes in dependants' allowances included increases in a widow's monthly pension in six jurisdictions: Prince Edward Island from \$75 to \$100; Nova Scotia from \$100 to \$115; Newfoundland from \$100 to \$120; Saskatchewan from \$115 to \$127.50; Ontario from \$125 to \$175; merchant seamen from \$75 to \$100. Children's monthly allowances were raised by \$5 in Newfoundland (to \$40 for a child with one parent and \$50 for an orphan); by \$10 in Ontario (to \$60 and \$70); and by \$10 under the Merchant Seamen Compensation Act (to \$35 and \$45). The maximum burial allowance for merchant seamen was increased from \$300 to \$400.

A new provision in the Yukon Ordinance allows payments to be made to dependants or to the Territory where a person serving a prison sentence becomes entitled to compensation payments because of a work release program or other circumstances.

A growing trend is for jurisdictions to establish reciprocal agreements. In this regard, Newfoundland and the Yukon Territory made provision for reciprocity in the case of silicosis victims under certain conditions. Manitoba and Saskatchewan made amendments of more general nature. An amendment to the Nova Scotia Act protects workers employed outside the province (particularly fishermen).

## Section 2.—The Labour Force\*

Since 1946, reliable information for analysis of employment in Canada, at the national level and for the five major regions, has been provided through a labour force survey. Between November 1945 and November 1952, quarterly surveys were undertaken and since then the survey has been carried out on a monthly basis. The sample used in the survey has been designed to represent all persons in the population, 14 years of age or over, residing in Canada, with the exception of residents of the Yukon and Northwest Territories, Indians living on reserves, inmates of institutions and members of the Armed Forces. Interviews are carried out in approximately 30,000 households chosen by area sampling methods across the country.†

\* Prepared in the Labour Division, Statistics Canada.

† A comprehensive description of the survey is given in Statistics Canada publication *Canadian Labour Force Survey (Methodology)* (Catalogue No. 71-504).

In the labour force survey, persons are classified on the basis of their activity during the week prior to the survey interview week. This week is called the reference week. The main divisions in the classification are:—

**Labour Force.**—The civilian labour force is composed of that portion of the civilian non-institutional population, 14 years of age or over who, during the reference week, were employed or unemployed.

**Employed.**—The employed include all persons who, during the reference week: (a) did any work for pay or profit; (b) did any work which contributed to the running of a farm or business operated by a related member of the household; (c) had a job, but were not at work, because of bad weather, illness, industrial dispute or vacation, or because they were taking time off for other reasons. Persons who had jobs but did not work during the reference week and who also looked for work are included in the unemployed as persons without work and seeking work.

**Unemployed.**—The unemployed include all persons who, through the reference week: (a) were without work and seeking work, i.e., did not work during the reference week and were looking for work, or would have been looking for work except that they were temporarily ill, were on indefinite or prolonged layoff, or believed no suitable work was available in the community; (b) were temporarily laid off for the full week, i.e., were waiting to be called back to a job from which they had been laid off for less than 30 days.

**Not in the Labour Force.**—Those not in the labour force include all civilians 14 years of age or over (exclusive of institutional population) who are not classified as employed or unemployed. This category includes those: going to school; keeping house; too old or otherwise unable to work; and voluntarily idle or retired. Housewives, students and others who worked part-time are classified as employed or, if they looked for work, as unemployed.

The estimates derived from the labour force survey, which are based on a sample of households, are subject to sampling error. Somewhat different figures might be obtained if a complete census were taken and this difference is called the sampling error of the estimates. In the design and processing of the labour force survey, extensive efforts are made to minimize the sampling error; in general, the percentage of error tends to decrease as the size of the estimate increases. A statistical measure of the sampling error is given in Statistics Canada monthly publication *The Labour Force* (Catalogue No. 71-001).

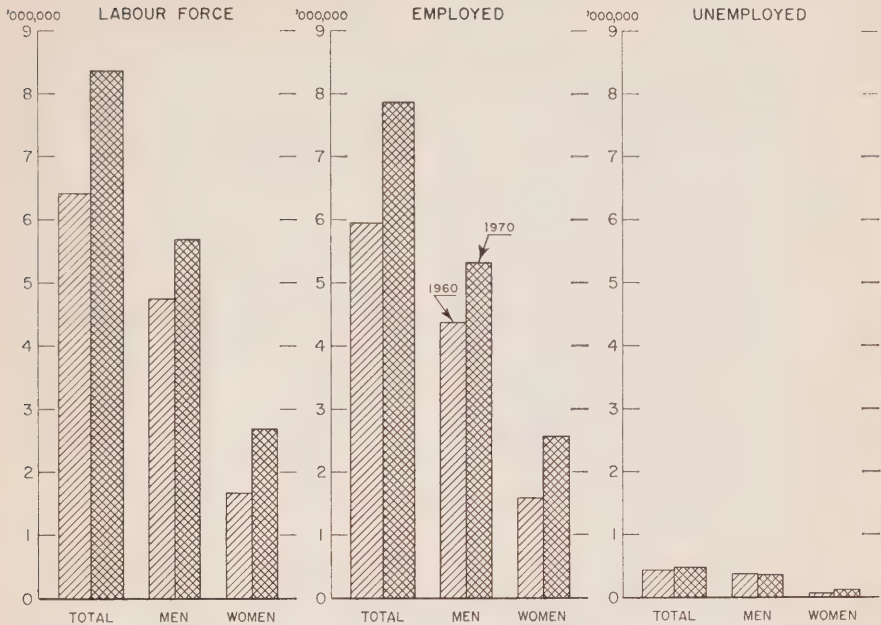
**The Labour Force, 1960-70.**—During the 1960s, the Canadian labour force expanded very rapidly, increasing by 1,963,000 or 30.6 p.c. During the 1960-70 period, the number of women in the labour force increased by 1,033,000 or 62.3 p.c., an advance that was greater, both absolutely and relatively, than the increase of 930,000 or 19.6 p.c. experienced by men. The total participation rate (the labour force as a percentage of the population) reached a record high level in 1970 of 55.8 compared with 54.2 in 1960. This occurred despite the continued decline of the male participation rate which reached a record low of 76.4 compared with 80.7 in 1960; the female rate rose from 27.9 to 35.5 in the same comparison. The total labour force, employed and unemployed, by sex, for 1960 and 1970 is shown in the chart on the facing page and changes in employment by region and by industry during the period are shown on page 836.

Table 1 shows that the total number of persons employed in Canada rose from 5,965,000 in 1960 to 7,879,000 in 1970, an increase that was shared by all regions of the country; employment in the Atlantic region rose by 23.8 p.c., in Quebec 30.8 p.c., in Ontario 33.2 p.c., in the Prairie region 23.5 p.c., and in British Columbia 57.0 p.c. The percentage distribution of the labour force, by sex, is shown in Table 2.

Table 3 shows the changes over the decade in the distribution of employment by industry. Noteworthy was the tremendous growth in the service industries' share of total employment, which rose from 25.3 p.c. in 1961 (1960 data not available) to 31.9 p.c. in 1970. This growth was confirmed by the occupation data given in Table 4, which shows that the proportion of professional and technical employed rose from 9.9 p.c. to 13.6 p.c. and service and recreation employed from 10.9 p.c. to 12.3 p.c. during the period.

Tables 1 and 5 provide a clear indication of the changing patterns of unemployment over the 1960-70 period, indicating the fall in the first half of the 1960s and the rise in the second half which reached a peak in 1970.

**TOTAL LABOUR FORCE, EMPLOYED AND UNEMPLOYED,  
BY SEX, 1960 AND 1970**



**1.—Estimates of the Civilian Labour Force and its Main Components,  
Annual Averages, 1960-70**

Year	Civilian Popu- lation (14 years of age or over)	Civilian Labour Force (14 years of age or over)						Persons not in the Labour Force (14 years of age or over)	
		Employed					Unem- ployed		Total Labour Force
		Non-agriculture			Agri- culture	Total (em- ployed)			
		Paid Workers	Other	Total (non-agri- culture)					
	'000	'000	'000	'000	'000	'000	'000	'000	
1960.....	11,831	4,732	551	5,282	683	5,965	446	6,411	5,420
1961.....	12,053	4,799	575	5,374	681	6,055	466	6,521	5,531
1962.....	12,280	4,980	585	5,565	660	6,225	390	6,615	5,665
1963.....	12,536	5,138	588	5,726	649	6,375	374	6,748	5,787
1964.....	12,817	5,368	611	5,979	630	6,609	324	6,933	5,884
1965.....	13,128	5,655	613	6,268	594	6,862	280	7,141	5,986
1966.....	13,475	5,999	610	6,609	544	7,152	267	7,420	6,055
1967.....	13,874	6,206	614	6,820	559	7,379	315	7,694	6,179
1968.....	14,264	6,391	601	6,992	546	7,537	382	7,919	6,344
1969.....	14,638	6,625	620	7,245	535	7,780	382	8,162	6,475
1970.....	15,016	6,740	628	7,368	511	7,879	495	8,374	6,642



## 2.—Percentage Distribution of the Population 14 Years of Age or Over in the Labour Force and Non-labour Force Categories, by Sex, 1960-70

Year	Popu- lation (14 years of age or over)	Percentage Distribution of the Population 14 Years of Age or Over							
		Labour Force				Not in Labour Force			
		Employed		Unem- ployed	Total	Women Keeping House	Persons Going to School	Other	Total
		Agri- culture	Non- agri- culture						
MALES									
	'000	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
1960.....	5,890	10.7	63.4	6.6	80.7	...	7.5	11.7	19.3
1961.....	5,991	10.4	62.7	6.7	79.8	...	8.1	12.1	20.2
1962.....	6,094	9.8	63.8	5.4	79.1	...	8.6	12.3	20.9
1963.....	6,215	9.3	64.2	5.0	78.5	...	9.0	12.5	21.5
1964.....	6,351	8.8	65.1	4.2	78.1	...	9.5	12.4	21.9
1965.....	6,505	8.0	66.4	3.4	77.9	...	9.9	12.2	22.1
1966.....	6,678	7.1	67.5	3.1	77.8	...	10.2	12.1	22.3
1967.....	6,876	7.1	66.9	3.6	77.5	...	10.3	12.2	22.5
1968.....	7,070	6.7	66.1	4.2	77.0	...	10.6	12.4	23.0
1969.....	7,255	6.3	66.3	4.0	76.6	...	10.8	12.5	23.4
1970.....	7,441	5.9	65.4	5.0	76.4	...	10.9	12.6	23.6
FEMALES									
	'000	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
1960.....	5,942	0.8	26.0	1.0	27.9	61.0	6.6	4.5	72.1
1961.....	6,061	1.0	26.6	1.1	28.7	59.9	6.9	4.5	71.3
1962.....	6,186	1.0	27.1	1.0	29.0	59.1	7.4	4.5	71.0
1963.....	6,320	1.1	27.5	1.0	29.6	58.1	7.9	4.4	70.4
1964.....	6,466	1.1	28.5	0.9	30.5	56.9	8.3	4.3	69.5
1965.....	6,623	1.1	29.4	0.8	31.3	55.6	8.6	4.5	68.7
1966.....	6,796	1.0	30.9	0.9	32.8	54.0	8.8	4.5	67.2
1967.....	6,997	1.0	31.8	1.0	33.8	53.2	8.8	4.2	66.2
1968.....	7,194	1.0	32.3	1.2	34.4	52.2	8.9	4.4	65.6
1969.....	7,383	1.0	33.0	1.3	35.2	51.0	9.2	4.5	64.7
1970.....	7,575	0.9	33.0	1.6	35.5	50.8	9.2	4.4	64.5

## 3.—Percentage Distribution of the Employed by Industrial Group, 1961-70

Year	Total Em- ployed	Percentage Distribution							
		Agri- culture	Other Primary Industries	Manu- facturing	Con- struction	Trans- portation and Other Utilities	Trade	Finance, Insurance and Real Estate	Service <sup>1</sup>
	'000	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
1961.....	6,055	11.2	3.0	24.0	6.2	9.3	16.9	3.9	25.3
1962.....	6,225	10.6	2.9	24.1	6.3	9.4	16.9	4.0	25.8
1963.....	6,375	10.2	2.8	24.3	6.4	9.4	16.7	4.0	26.3
1964.....	6,609	9.5	3.0	25.0	6.2	8.9	16.7	4.0	26.7
1965.....	6,862	8.7	3.4	23.8	6.7	9.0	16.7	4.1	27.6
1966.....	7,152	7.6	3.1	24.4	7.0	8.7	16.5	4.2	28.5
1967.....	7,379	7.6	3.0	23.8	6.4	8.9	16.6	4.2	29.5
1968.....	7,537	7.2	2.9	23.3	6.2	8.9	16.7	4.3	30.4
1969.....	7,780	6.9	2.8	23.4	6.2	8.9	16.6	4.5	30.7
1970.....	7,879	6.5	2.8	22.7	6.0	8.8	16.8	4.6	31.9

<sup>1</sup> Includes public administration and defence.

## 4.—Percentage Distribution of the Employed by Major Occupational Group, 1961-70

Year	All Occupations Annual Average	Managerial	Professional and Technical	Clerical	Sales <sup>1</sup>	Service and Recreation
	No.	p.c.	p.c.	p.c.	p.c.	p.c.
1961.....	6,055	9.2	9.9	13.3	7.4	10.9
1962.....	6,225	9.3	10.6	13.3	7.3	10.9
1963.....	6,375	9.2	10.6	13.4	7.2	11.1
1964.....	6,609	9.2	10.6	13.4	7.4	11.7
1965.....	6,862	9.3	11.4	13.4	7.0	11.6
1966.....	7,152	9.4	12.2	14.1	6.7	11.4
1967.....	7,379	9.4	12.4	14.1	6.8	11.8
1968.....	7,537	9.5	13.0	14.6	6.8	12.0
1969.....	7,780	9.6	13.3	14.8	6.8	12.0
1970.....	7,879	10.0	13.6	14.8	7.1	12.3

	Transportation	Communication	Farmers and Farm Workers	Fishermen, Trappers, Loggers and Miners	Craftsmen, Production Process and Related Workers <sup>2</sup>	Labourers and Unskilled Workers
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
1961.....	5.8	0.9	11.3	2.1	24.2	5.0
1962.....	5.6	0.9	10.6	1.9	24.7	4.8
1963.....	5.6	0.9	10.3	1.9	24.9	4.8
1964.....	5.6	0.8	9.6	2.1	24.6	4.9
1965.....	5.4	0.9	8.7	2.2	25.2	4.9
1966.....	4.8	0.9	7.7	2.0	26.1	4.8
1967.....	4.7	0.9	7.6	1.9	26.1	4.3
1968.....	4.6	0.9	7.3	1.8	25.3	4.1
1969.....	4.5	0.8	6.9	1.6	25.5	4.1
1970.....	4.5	0.8	6.5	1.6	24.8	4.0

<sup>1</sup> Includes commercial and financial occupations, construction occupations.

<sup>2</sup> Includes manufacturing and mechanical and construction occupations.

## 5.—Estimates of Employment and Unemployment, by Region, 1960-70

Year	Atlantic		Quebec		Ontario		Prairies		British Columbia	
	Employment	Unemployment	Employment	Unemployment	Employment	Unemployment	Employment	Unemployment	Employment	Unemployment
	'000	'000	'000	'000	'000	'000	'000	'000	'000	'000
1960..	492	59	1,639	164	2,249	128	1,069	47	516	48
1961..	507	64	1,652	168	2,269	132	1,100	53	527	49
1962..	516	62	1,713	139	2,317	105	1,129	46	551	39
1963..	522	55	1,762	142	2,382	94	1,138	44	571	39
1964..	542	46	1,827	124	2,473	83	1,162	37	605	34
1965..	566	45	1,912	109	2,548	66	1,196	31	639	28
1966..	586	40	2,016	100	2,651	69	1,222	26	678	32
1967..	593	42	2,080	116	2,745	89	1,238	29	723	39
1968..	596	47	2,082	145	2,830	104	1,280	39	750	47
1969..	605	49	2,132	158	2,936	95	1,312	39	795	42
1970..	609	50	2,144	183	2,996	134	1,320	61	810	67

### CHANGE IN EMPLOYMENT BY REGION AND BY INDUSTRY BETWEEN 1960\* AND 1970



\* INDUSTRY COMPARISON IS BETWEEN 1961 AND 1970; 1960 DATA IS NOT AVAILABLE.

## Section 3.—Employment Statistics\*

### Subsection 1.—Statistics of Employment, Earnings and Hours

Monthly records of employment have been collected from larger business establishments since 1921. At that time a survey was instituted to provide employment index numbers which would serve as current economic indicators. In 1941 the survey was extended to provide information on payrolls and per capita wages and salaries and in 1944 it was further extended to provide data on hours of work and hourly and weekly wages. Also during the war period, separate records for men and women employees were established. Beginning with the January 1966 issues of *Employment and Average Weekly Wages and Salaries* and *Man-Hours and Hourly Earnings*, the data compiled are on a revised basis. A historical series (Catalogue No. 72-504) provides, on the revised basis, monthly and annual data from 1961-65. The revision has involved the publishing of employment indexes on the time base 1961 = 100 in place of the time base 1949 = 100. All data are compiled on the 1960 standard industrial classification.

The survey now covers sectors of the following major industry divisions: forestry; mining (including milling); manufacturing; construction; transportation, communication and other utilities; trade; and finance, insurance and real estate. Also included are certain branches of the service industry, mainly hotels and restaurants, laundries and dry-cleaning plants, and recreational and business services. The survey excludes agriculture, public

\* Prepared in the Employment Section, Labour Division, Statistics Canada.

administration and community services such as health and education. The coverage corresponds closely, therefore, to the business sector of the economy. Since the survey covers only firms employing 20 or more persons in any month of the year and excludes several industries, the employment records are published in the form of index numbers.

The monthly employment statistics relate to the number of employees drawing pay in the last pay period in the month. Data are requested for all classes of employees with the exception of homeworkers and casual employees working less than one day in the pay period. Owners and firm members are also excluded. The respondents report the gross wages and salaries paid in the last pay period in the month, before deductions are made for income tax, unemployment insurance, etc. The reported payrolls represent gross remuneration for services rendered and paid absences in the period specified, including salaries, commissions, piece-work and time-work payments, and such items as shift premiums and regularly paid production, and incentive and cost-of-living bonuses. The statistics on hours relate to the straight and overtime hours worked by those wage-earners for whom records of hours are maintained, and also to hours credited to wage-earners absent on paid leave during the reported period. If the reported period exceeds one week, the payroll and hours data are reduced to weekly equivalents.

**Employment.**—Table 6 shows that, over the 1966-70 period, the industrial composite index of employment rose by 5.3 p.c. Each sector except forestry, construction and manufacturing contributed to the increase; service advanced by 28.3 p.c., finance, insurance and real estate by 19.2 p.c., trade by 14.2 p.c., mining by 8.1 p.c. and transportation, communication and other utilities by 4.7 p.c. The declines in forestry, construction and manufacturing amounted to 20.7 p.c., 11.6 p.c. and 0.6 p.c., respectively. Compared with 1969, the 1970 composite index was up 0.2 p.c.



Statistics Canada staff at work on 1971 Census forms. Although highly sophisticated computers are used to tabulate detailed returns, the services of 4,000 clerks were required for varying periods of time, some for three years. All 1971 Census publications will be published by May 1974.



### 6.—Annual Average Index Numbers of Employment, by Industrial Division, 1966-70, and Monthly Indexes 1970 and 1971

NOTE.—These indexes are calculated as at the last pay period of each month, on the base 1961=100.

Year and Month	Forestry	Mining (incl. milling)	Manufacturing	Construction	Transportation, Communication and Other Utilities	Trade	Finance, Insurance and Real Estate	Service <sup>1</sup>	Industrial Composite
<b>Averages—</b>									
1966.....	106.2	107.0	123.5	128.9	107.5	122.0	120.5	139.1	120.7
1967.....	102.3	109.0	123.2	122.5	111.0	125.8	126.0	153.4	122.6
1968.....	91.1	109.8	122.1	119.4	109.5	129.4	131.4	157.8	122.7
1969.....	88.7	107.9	125.2	119.1	111.9	136.6	138.8	171.8	126.9
1970.....	84.2	115.7	122.8	113.9	112.6	139.3	143.6	178.5	127.1
<b>1970—</b>									
January.....	81.7	111.6	122.5	102.8	108.8	137.3	142.5	169.9	124.4
February.....	78.1	113.1	122.6	102.9	108.3	136.8	142.9	170.4	124.3
March.....	68.3	113.2	122.6	102.4	108.1	137.2	142.8	171.9	124.2
April.....	58.4	112.3	122.2	104.7	109.7	137.4	142.7	174.5	124.5
May.....	74.4	115.9	122.8	112.4	112.4	138.4	143.6	179.3	126.7
June.....	96.9	119.4	125.4	120.1	113.9	139.3	144.9	183.7	129.6
July.....	103.1	121.2	122.1	122.6	115.4	137.0	145.2	184.8	128.6
August.....	101.4	120.9	126.4	127.2	116.7	135.9	144.4	187.9	130.9
September.....	100.3	117.2	123.7	127.8	115.8	139.5	143.3	183.1	129.6
October.....	92.0	115.7	122.5	126.8	114.8	141.6	143.6	182.0	129.0
November.....	84.9	114.6	120.7	116.0	113.6	144.8	144.0	180.1	127.7
December.....	72.2	113.8	119.7	98.6	113.1	145.8	143.8	174.6	125.4
<b>1971—</b>									
January.....	67.7	114.4	119.1	96.4	110.8	136.3	143.7	174.6	123.0
February.....	65.0	113.7	118.5	97.7	110.9	134.2	144.7	172.7	122.4
March.....	58.5	113.8	118.9	101.5	109.9	135.6	145.7	178.8	123.5
April.....	52.9	110.9	119.5	108.3	111.9	137.7	145.5	182.3	124.5
May.....	75.3	115.7	122.6	120.0	114.8	139.9	146.4	188.3	128.5
June.....	94.1	120.1	124.6	129.0	117.8	141.1	147.5	195.2	131.7

<sup>1</sup> Consists mainly of hotels, restaurants, laundries, dry-cleaning establishments and recreational and business services.

### 7.—Annual Average Index Numbers of Employment, by Industrial Division and Group, 1966-70

NOTE.—These indexes refer to the last week of each month and are on the base 1961=100.

Industry	1966	1967	1968	1969	1970
<b>Forestry.....</b>	<b>106.2</b>	<b>102.3</b>	<b>91.1</b>	<b>88.7</b>	<b>84.2</b>
<b>Mining (incl. milling).....</b>	<b>107.0</b>	<b>109.0</b>	<b>109.8</b>	<b>107.9</b>	<b>115.7</b>
Metals.....	103.4	105.0	103.8	97.4	106.5
Gold.....	72.1	62.7	56.4	51.1	45.4
Copper-gold-silver.....	120.6	125.8	120.5	121.3	125.4
Iron.....	141.0	135.9	134.1	122.6	135.1
Mineral fuels.....	100.7	103.6	103.4	102.6	108.9
Coal.....	87.5	83.5	78.2	69.6	74.0
Petroleum and gas wells.....	113.8	123.8	129.0	136.4	144.0
Non-metals (except fuels).....	109.9	113.9	117.3	126.3	136.3
Asbestos.....	100.4	103.5	109.3	110.9	118.0
<b>Manufacturing.....</b>	<b>123.5</b>	<b>123.2</b>	<b>122.1</b>	<b>125.2</b>	<b>122.8</b>
Durable goods.....	134.7	133.9	131.7	136.7	132.8
Non-durable goods.....	114.4	114.5	114.4	115.9	114.7
Foods and beverages.....	109.9	110.4	110.2	109.1	109.1
Slaughtering and meat processing.....	101.4	104.4	105.1	102.1	102.4
Dairy products.....	127.5	106.7	105.6	101.6	102.9
Fish products.....	127.5	121.7	131.3	129.7	128.8
Fruit and vegetable processing.....	124.8	120.9	120.8	118.4	116.9
Grain mill products.....	100.0	103.5	103.4	102.7	107.1
Biscuits.....	106.1	108.1	104.9	106.0	103.7
Bakeries.....	103.8	99.7	96.0	95.9	94.0
Confectionery.....	116.1	115.9	110.3	107.2	103.8
Soft drinks.....	117.6	124.6	125.4	122.5	119.6
Distilleries.....	108.2	115.7	113.3	117.5	115.4
Breweries.....	99.1	98.9	97.3	97.8	99.6

**7.—Annual Average Index Numbers of Employment, by Industrial Division and Group,  
1966-70—continued**

Industry	1966	1967	1968	1969	1970
<b>Manufacturing—concluded</b>					
Tobacco processing and products.....	99.5	105.1	101.2	97.8	95.4
Rubber products.....	123.6	122.0	120.0	123.7	112.2
Leather products.....	103.5	98.7	100.3	99.2	91.2
Shoes (except rubber).....	98.3	94.4	94.9	94.3	86.0
Luggage, handbags and small leather goods.....	129.7	123.8	127.6	123.6	113.2
Textile products.....	120.0	119.9	117.8	119.8	113.7
Cotton yarn and cloth.....	96.3	100.2	89.7	86.9	78.2
Woollen yarn and cloth.....	110.4	97.3	90.6	89.9	88.0
Synthetic textiles.....	136.3	136.0	131.0	136.3	126.4
Knitting mills.....	116.7	110.5	113.7	117.3	112.5
Hosiery.....	101.6	98.1	108.1	113.1	106.0
Other knitting mills.....	125.5	117.7	117.3	120.2	116.7
Clothing.....	114.5	110.9	109.2	109.2	109.2
Men's clothing.....	120.2	116.5	113.6	114.5	119.3
Women's clothing.....	116.6	114.9	113.2	115.5	112.3
Wood products.....	113.1	108.3	108.4	113.0	108.1
Saw, shingle and planing mills.....	108.9	103.9	105.4	111.7	108.8
Furniture and fixtures.....	132.5	128.6	126.8	134.0	127.6
Household furniture.....	137.0	131.8	130.9	138.7	129.7
Paper and allied industries.....	117.5	118.4	117.6	121.7	121.1
Pulp and paper mills.....	114.9	115.0	112.7	116.3	116.3
Printing, publishing and allied industries.....	110.9	113.6	114.4	115.5	116.6
Commercial printing.....	110.7	114.3	116.9	117.8	118.9
Printing and publishing.....	100.4	110.6	109.6	110.8	111.3
Primary metal industries.....	125.0	124.4	125.6	123.2	130.5
Iron and steel mills.....	133.8	129.5	130.7	126.1	137.6
Iron foundries.....	145.5	139.9	144.5	153.2	143.5
Smelting and refining.....	110.5	114.8	113.2	107.3	119.7
Metal fabricating industries.....	136.2	133.6	130.1	135.7	133.9
Fabricated structural metals.....	134.4	120.5	108.6	117.1	122.8
Ornamental and architectural metals.....	130.7	123.5	119.0	125.3	122.4
Metal stamping, pressing and coating.....	136.3	138.1	138.3	144.6	138.2
Wire and wire products.....	136.0	134.7	135.4	138.6	136.0
Hardware, tools and cutlery.....	149.7	148.4	150.0	160.8	163.0
Heating equipment.....	110.9	109.4	104.5	106.6	103.0
Miscellaneous metal fabricating.....	137.4	134.5	130.5	130.1	127.8
Machinery (except electrical).....	147.7	149.7	141.0	151.4	149.5
Agricultural implements.....	142.7	141.0	109.7	119.2	95.5
Miscellaneous machinery and equipment.....	152.0	150.8	143.4	152.5	153.2
Office and store machinery.....	141.4	162.2	172.8	191.2	207.9
Transportation equipment.....	149.3	151.8	147.6	155.6	141.7
Aircraft and parts.....	114.1	129.1	123.0	117.3	104.8
Motor vehicles.....	171.2	168.0	169.3	183.9	166.6
Assembling.....	174.8	166.2	170.0	181.6	160.9
Parts and accessories.....	168.0	168.7	166.8	180.5	162.7
Shipbuilding and repair.....	135.6	128.8	108.4	107.6	92.5
Electrical products.....	142.0	144.2	143.6	150.4	144.3
Major appliances (incl. non-electrical).....	125.0	119.7	120.0	125.5	106.5
Household radios and televisions.....	120.6	127.9	119.9	130.4	124.9
Communications equipment.....	150.5	167.7	177.6	180.0	171.7
Non-metallic mineral products.....	125.5	119.2	116.8	119.3	115.3
Concrete products.....	142.9	122.2	115.8	124.4	123.7
Clay products.....	113.0	108.5	108.1	111.3	105.8
Glass and glass products.....	124.5	125.2	128.9	129.2	127.1
Petroleum and coal products.....	99.7	102.7	104.0	104.0	105.9
Petroleum refineries.....	88.7	94.0	94.4	92.2	93.8
Chemicals and chemical products.....	117.1	118.8	118.7	120.4	120.5
Pharmaceuticals and medicines.....	121.9	131.2	133.4	137.9	143.3
Paints and varnishes.....	105.3	108.0	106.4	109.6	108.9
Soap and cleaning compounds.....	103.1	101.8	102.5	102.3	98.8
Industrial chemicals.....	116.3	118.3	115.7	117.9	119.8
Miscellaneous manufacturing industries.....	131.2	133.0	137.8	149.4	151.8
<b>Construction.....</b>	<b>128.9</b>	<b>122.5</b>	<b>119.4</b>	<b>119.1</b>	<b>113.9</b>
Building.....	131.4	127.8	127.2	130.3	124.9
General contractors.....	123.5	115.2	111.2	110.7	103.6
Special trade contractors.....	140.2	141.5	144.2	151.1	147.6
Engineering.....	124.5	113.3	106.0	99.8	95.0
Highways, bridges and streets.....	106.6	97.0	90.2	84.0	81.0
Other engineering.....	147.0	134.2	127.0	120.1	113.0
<b>Transportation, Communication and Other Utilities.....</b>	<b>107.5</b>	<b>111.0</b>	<b>109.5</b>	<b>111.9</b>	<b>112.6</b>
Transportation.....	103.9	107.8	105.8	107.3	106.9
Air transport and services.....	119.1	136.0	143.7	145.2	161.2
Water transport and services.....	106.6	102.9	99.8	101.2	100.7

### 7.—Annual Average Index Numbers of Employment, by Industrial Division and Group, 1966-70—concluded

Industry	1966	1967	1968	1969	1970
<b>Transportation, Communication and Other Utilities—concluded</b>					
Transportation—concluded					
Railway transport.....	94.9	96.6	88.4	86.3	84.2
Truck transport.....	119.4	129.4	133.6	138.7	135.0
Bus transport, interurban and rural.....	110.8	115.6	113.4	123.2	129.1
Urban transit.....	106.3	112.9	115.6	113.8	114.3
Highway and bridge maintenance.....	105.7	108.1	111.3	116.6	113.0
Storage.....	113.5	114.8	111.4	110.1	110.3
Grain elevators.....	111.4	110.7	107.4	102.5	102.4
Other storage and warehousing.....	119.2	126.0	122.6	131.4	131.9
Communication.....	116.5	118.8	116.3	121.3	125.7
Radio and television broadcasting.....	117.2	124.0	128.3	132.7	133.5
Telephone.....	122.0	122.2	118.2	119.0	123.0
Telegraph and cable.....	95.9	93.0	86.5	81.5	80.5
Post office.....	112.3	118.1	116.6	132.8	141.3
Electric power, gas and water.....	109.3	113.1	116.3	119.0	120.4
Electric power.....	110.3	115.0	118.3	121.6	124.6
Gas distribution.....	102.0	102.5	105.2	107.6	103.7
<b>Trade.....</b>	<b>122.0</b>	<b>125.8</b>	<b>129.4</b>	<b>136.6</b>	<b>139.3</b>
Wholesale.....	117.5	121.1	122.5	129.0	132.8
Retail.....	124.6	128.4	133.2	140.7	142.8
Food stores.....	125.9	133.0	140.3	148.4	151.6
Department stores.....	125.8	128.6	131.6	136.9	135.6
Variety stores.....	125.1	119.5	124.7	132.5	132.6
Automotive product stores.....	131.5	134.8	141.5	148.3	149.2
<b>Finance, Insurance and Real Estate.....</b>	<b>120.5</b>	<b>126.0</b>	<b>131.4</b>	<b>138.8</b>	<b>143.6</b>
Financial institutions.....	124.4	128.7	134.3	143.5	148.2
Insurance and real estate.....	114.9	122.3	127.4	132.4	137.5
Insurance carriers.....	112.0	119.3	122.4	124.7	126.6
<b>Service.....</b>	<b>139.1</b>	<b>153.4</b>	<b>157.8</b>	<b>171.8</b>	<b>178.5</b>
Recreational services.....	127.5	135.4	144.3	158.4	161.3
Business services.....	156.7	167.4	173.1	189.5	194.8
Personal services.....	130.4	141.4	145.7	157.2	162.3
Miscellaneous services.....	153.9	188.3	187.6	206.7	223.5
<b>Industrial Composite.....</b>	<b>120.7</b>	<b>122.6</b>	<b>122.7</b>	<b>126.9</b>	<b>127.1</b>

### 8.—Annual Average Index Numbers of Employment, by Province, 1966-70, and Monthly Indexes 1970 and 1971

NOTE.—These indexes refer to the last week of each month and are on the base 1961=100.

Year and Month	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Canada
<b>Averages—</b>											
1966.....	126.2	124.4	113.0	115.2	118.1	123.3	111.2	116.5	120.5	126.2	120.7
1967.....	121.7	124.9	113.3	116.5	119.4	125.1	115.0	119.5	126.2	128.7	122.6
1968.....	119.3	131.9	114.3	116.5	117.7	126.1	115.6	119.5	128.7	128.8	122.7
1969.....	120.7	130.6	117.8	119.1	119.9	131.0	118.0	118.1	136.7	137.5	126.9
1970.....	121.8	134.0	114.3	119.2	119.3	131.6	117.7	113.2	138.2	139.3	127.1
<b>1970—</b>											
January.....	111.3	117.6	112.5	111.5	116.4	129.6	115.3	109.0	135.3	137.3	124.4
February.....	109.8	112.7	109.9	111.1	116.4	129.7	115.0	108.0	134.9	138.0	124.3
March.....	111.9	113.1	108.7	109.2	116.4	129.5	115.7	108.6	135.0	138.0	124.2
April.....	111.1	115.3	110.7	110.5	116.7	129.9	115.4	108.2	133.8	138.0	124.5
May.....	118.6	132.3	114.2	119.9	119.0	132.0	117.6	112.5	138.0	134.8	126.7
June.....	131.1	145.2	116.9	125.6	122.1	134.0	120.0	116.7	141.4	138.6	129.6
July.....	132.0	147.6	118.5	125.6	120.4	131.8	119.9	118.5	143.6	140.0	128.6
August.....	133.9	154.3	116.7	128.0	123.0	134.7	121.0	118.4	143.2	142.6	130.9
September.....	131.3	152.6	118.0	126.5	122.5	132.7	120.4	116.5	141.3	142.8	129.6
October.....	131.9	147.9	118.5	124.6	121.4	132.2	119.7	116.4	140.1	142.7	129.0
November.....	125.8	141.7	116.4	121.7	120.3	131.8	117.8	114.0	136.3	141.0	127.7
December.....	113.6	128.1	110.8	116.5	116.7	131.4	114.7	111.3	134.6	137.9	125.4
<b>1971—</b>											
January.....	112.5	122.3	108.8	113.2	115.3	128.6	113.8	107.7	132.1	133.6	123.0
February.....	111.6	125.7	107.6	112.5	114.9	128.3	111.8	108.4	130.8	135.6	122.4
March.....	114.3	123.1	106.9	112.7	114.1	128.7	113.8	109.2	133.4	138.3	123.5
April.....	116.2	127.2	110.5	112.3	115.0	130.5	113.9	111.2	133.3	140.8	124.5
May.....	128.1	141.4	115.5	124.5	119.0	133.3	116.9	115.6	139.8	144.4	128.5
June.....	139.4	148.8	117.4	134.3	121.8	135.6	121.5	120.5	143.9	147.9	131.7

### 9.—Annual Average Index Numbers of Employment, by Metropolitan Area, 1966-70, and Monthly Indexes 1970 and 1971

NOTE.—These indexes refer to the last week of each month and are on the base 1961=100.

Year and Month	Montreal	Quebec	Toronto	Ottawa-Hull	Hamilton	Windsor	Winnipeg	Vancouver
<b>Averages—</b>								
1966.....	120.8	115.8	123.6	117.4	123.7	148.5	114.3	124.2
1967.....	122.6	116.3	126.0	123.5	120.8	148.2	117.3	127.7
1968.....	121.0	114.6	128.2	128.6	119.8	149.6	116.9	129.6
1969.....	122.7	118.1	134.3	137.7	121.2	152.7	121.2	140.0
1970.....	121.4	123.3	135.1	140.6	124.0	149.9	121.2	141.1
<b>1970—</b>								
January.....	119.5	117.7	133.2	136.1	122.3	147.9	119.6	141.1
February.....	119.9	118.2	133.8	136.2	122.2	146.9	119.3	141.3
March.....	120.7	118.7	133.4	136.4	121.7	148.6	119.8	140.6
April.....	121.2	119.7	134.1	137.1	121.6	148.8	119.4	139.4
May.....	121.5	122.0	135.7	141.9	122.8	147.5	121.3	137.4
June.....	123.2	124.8	137.0	143.2	125.8	149.8	123.0	138.4
July.....	120.2	123.2	133.6	142.5	124.7	145.6	122.2	140.5
August.....	122.7	126.3	135.9	142.9	126.2	156.6	122.8	144.2
September.....	122.9	127.8	136.1	142.8	126.6	152.0	123.2	142.9
October.....	122.2	129.0	136.9	143.3	124.7	151.1	123.5	142.7
November.....	121.7	127.8	137.2	143.5	124.8	151.0	121.8	142.3
December.....	119.5	124.1	134.6	141.6	124.7	153.0	118.6	141.4
<b>1971—</b>								
January.....	118.0	121.1	132.1	137.3	122.4	149.9	121.8	135.6
February.....	117.8	122.4	132.2	138.5	121.1	147.8	116.3	137.0
March.....	118.0	123.3	133.3	138.7	122.4	148.4	118.0	139.1
April.....	118.7	125.7	134.6	139.6	123.4	150.5	118.7	141.2
May.....	121.7	129.7	136.8	142.1	125.4	152.6	120.5	144.3
June.....	122.9	133.9	139.6	146.7	124.1	154.4	124.0	147.2

**Weekly Wages and Salaries.**—Average weekly wages and salaries have increased substantially in the years for which current payroll statistics have been collected, rising from \$23.44 in 1939 to \$96.30 in 1966 and \$126.82 in 1970. The upward movement gained momentum after the end of the War and average annual increases from 1946 to 1952 were more than double those between 1939 and 1946. After 1952 the rate of increase, in terms of year-to-year percentage changes, fell slightly, particularly between 1959 and 1962 when average earnings rose about 3 p.c. per annum. In the following years the rate increased moderately—earnings in 1969 were 7.1 p.c. higher than in 1968 and in 1970 they were 7.8 p.c. higher than in 1969.

### 10.—Annual Index Numbers of Employment and Average Weekly Wages and Salaries, by Industry, Province and Urban Area, 1968-70

Industry	Employment (1961=100)			Average Weekly Wages and Salaries		
	1968	1969	1970	1968	1969	1970
Industry				\$	\$	\$
Forestry.....	91.1	88.7	84.2	122.04	133.60	137.60
Mining (incl. milling).....	109.8	107.9	115.7	139.16	148.93	164.70
Manufacturing.....	122.1	125.2	122.8	114.42	122.93	132.75
Durable goods <sup>1</sup> .....	131.7	136.7	132.8	123.30	132.13	142.87
Non-durable goods <sup>1</sup> .....	114.4	115.9	114.7	106.16	114.14	123.27
Construction.....	119.4	119.1	113.9	137.59	150.68	167.15
Transportation, communication and other utilities.....	109.5	111.9	112.6	122.70	131.03	142.35
Trade.....	129.4	136.6	139.3	86.91	93.80	100.50
Finance, insurance and real estate.....	131.4	138.8	143.6	106.21	113.83	120.52
Service.....	157.8	171.8	178.5	78.99	84.23	90.65
<b>Industrial Composite.....</b>	<b>122.7</b>	<b>126.9</b>	<b>127.1</b>	<b>109.88</b>	<b>117.63</b>	<b>126.82</b>

<sup>1</sup> Durable goods manufacturing includes wood products, furniture and fixtures, primary metal industries, metal fabricating industries, machinery (except electrical), transportation equipment, electrical products and non-metallic mineral products; non-durable goods manufacturing includes all other manufacturing industries.



**10.—Annual Index Numbers of Employment and Average Weekly Wages and Salaries,  
by Industry, Province and Urban Area, 1968-70 —concluded**

Province and Urban Area	Employment (1961=100)			Average Weekly Wages and Salaries		
	1968	1969	1970	1968	1969	1970
<b>Province</b>				\$	\$	\$
Newfoundland.....	119.3	120.7	121.8	99.15	106.00	117.70
Prince Edward Island.....	131.9	130.6	134.0	72.41	80.87	83.82
Nova Scotia.....	114.3	117.8	114.3	88.19	94.51	104.21
New Brunswick.....	116.5	119.1	119.2	89.55	96.80	104.01
Quebec.....	117.7	119.9	119.3	107.92	114.24	122.38
Ontario.....	126.1	131.0	131.6	113.52	121.55	131.52
Manitoba.....	115.6	118.0	117.7	100.46	107.67	115.88
Saskatchewan.....	119.5	118.1	113.2	102.11	107.90	114.87
Alberta.....	128.7	136.7	138.2	108.02	117.95	128.15
British Columbia.....	128.8	137.5	139.3	120.76	129.35	137.97
<b>Urban Area</b>						
Corner Brook, Nfld.....	103.9	100.9	104.8	109.99	116.94	125.77
St. John's, Nfld.....	137.7	136.2	134.9	87.39	92.44	100.20
Halifax, N.S.....	116.7	121.9	120.8	91.31	98.12	105.77
Sydney, N.S.....	99.7	93.3	90.7	95.11	101.44	111.62
Moncton, N.B.....	118.8	129.0	136.8	86.38	93.34	98.79
Saint John, N.B.....	111.2	114.6	113.9	89.82	97.97	105.50
Chicoutimi, Que.....	106.5	112.0	113.6	125.20	133.62	143.12
Drummondville, Que.....	115.1	120.1	117.2	87.74	93.55	100.52
Granby, Que.....	108.3	109.3	106.9	87.13	93.69	101.64
Montreal, Que.....	121.0	122.7	121.4	109.63	116.71	125.45
Ottawa, Ont.—Hull, Que.....	128.6	137.7	140.6	102.74	110.36	119.17
Quebec, Que.....	114.6	118.1	123.3	93.33	100.49	109.84
Rouyn-Noranda, Que.....	101.5	104.3	107.3	104.55	113.95	124.91
St. Hyacinthe, Que.....	122.6	122.7	124.0	81.40	88.72	96.25
St. Jean, Que.....	129.9	127.4	123.0	91.49	98.78	103.96
St. Jérôme, Que.....	103.6	114.7	114.2	89.28	94.91	103.61
Shawinigan, Que.....	98.7	94.4	95.3	110.49	118.91	126.79
Sherbrooke, Que.....	115.7	117.2	111.9	92.91	99.16	107.49
Sorel, Que.....	139.3	155.7	157.9	120.03	127.99	143.91
Thetford Mines, Que.....	113.4	119.9	120.8	114.35	119.55	130.63
Trois-Rivières, Que.....	111.2	114.9	112.4	100.30	108.27	117.25
Valleyfield, Que.....	129.0	131.0	129.1	112.94	121.13	129.81
Belleville, Ont.....	118.7	124.8	127.0	95.48	102.97	110.54
Brampton, Ont.....	261.5	280.1	289.3	112.27	120.09	128.93
Brantford, Ont.....	125.6	137.7	130.8	103.44	110.57	117.18
Brockville, Ont.....	130.4	128.1	129.9	107.52	114.81	124.19
Chatham, Ont.....	133.9	139.4	138.8	112.89	119.89	129.12
Cornwall, Ont.....	132.7	138.5	127.5	105.96	111.70	119.89
Guelph, Ont.....	136.7	141.9	141.2	103.60	110.65	120.93
Hamilton, Ont.....	119.8	121.2	124.0	116.62	123.06	135.49
Kingston, Ont.....	123.0	128.3	125.6	108.30	115.28	121.24
Kitchener, Ont.....	145.3	154.9	153.6	101.53	108.41	116.13
London, Ont.....	121.3	125.2	124.4	105.05	113.27	121.41
Niagara Falls, Ont.....	106.9	112.5	116.1	105.01	112.52	120.45
North Bay, Ont.....	113.0	116.0	119.4	108.40	115.53	126.84
Oshawa, Ont.....	130.1	140.8	121.9	130.36	136.70	145.56
Peterborough, Ont.....	132.8	141.5	142.1	114.44	122.77	131.17
St. Catharines, Ont.....	133.6	143.2	133.2	121.84	132.55	139.88
St. Thomas, Ont.....	173.1	207.5	198.2	112.40	128.50	141.15
Sarnia, Ont.....	139.6	143.0	135.9	144.31	153.69	161.99
Sault Ste. Marie, Ont.....	119.4	111.3	124.0	124.29	130.77	149.19
Stratford, Ont.....	141.3	150.5	147.8	96.59	104.26	110.95
Sudbury, Ont.....	115.7	103.2	131.9	133.73	140.11	159.21
Thunder Bay, Ont.....	119.6	124.2	125.6	105.68	117.02	124.69
Timmins, Ont.....	75.5	72.4	72.0	100.21	106.32	116.59
Toronto, Ont.....	128.2	134.3	135.1	114.08	123.07	133.67
Welland, Ont.....	108.4	108.1	115.6	127.58	138.41	149.01
Windsor, Ont.....	149.6	152.7	149.9	128.92	137.28	150.80
Woodstock, Ont.....	149.4	158.4	150.1	103.21	110.68	117.65
Winnipeg, Man.....	116.9	121.2	121.2	93.50	100.80	108.84
Regina, Sask.....	121.7	123.0	118.5	96.75	103.55	110.64
Saskatoon, Sask.....	144.5	140.9	132.6	96.42	101.38	109.12
Calgary, Alta.....	136.8	147.3	147.2	106.71	117.10	126.73
Edmonton, Alta.....	136.0	145.1	145.7	102.63	111.98	121.80
Vancouver, B.C.....	129.6	140.0	141.1	116.29	125.21	133.90
Victoria, B.C.....	122.1	133.6	131.0	103.56	112.06	117.30

### 11.—Annual Average Weekly Wages and Salaries, by Industrial Division, 1966-70, and Monthly Averages 1970 and 1971

Year and Month	Forestry	Mining (incl. milling)	Manufacturing	Construction	Transportation, Communication and Other Utilities	Trade	Finance, Insurance and Real Estate	Services <sup>1</sup>	Industrial Composite
	\$	\$	\$	\$	\$	\$	\$	\$	\$
<b>Averages—</b>									
1966.....	104.78	119.55	100.13	120.42	103.41	76.86	93.00	70.18	96.30
1967.....	113.64	129.13	106.53	130.83	113.15	81.24	99.02	74.98	102.76
1968.....	122.04	139.16	114.42	137.59	122.70	86.91	106.21	78.99	109.88
1969.....	133.60	148.93	122.93	150.68	131.03	93.80	113.83	84.23	117.63
1970.....	137.60	164.70	132.75	167.15	142.35	100.50	120.52	90.65	126.82
<b>1970—</b>									
January.....	137.41	160.51	129.28	160.48	137.09	97.45	118.09	88.63	123.08
February.....	149.16	162.34	130.17	162.09	138.88	98.07	116.80	89.85	124.14
March.....	144.87	165.76	130.08	152.90	139.15	98.79	117.86	89.38	123.79
April.....	146.77	163.31	131.43	164.13	140.94	99.94	119.42	90.32	125.53
May.....	124.49	162.35	132.39	166.38	141.86	100.11	119.60	89.68	126.07
June.....	124.24	161.74	133.21	166.59	143.02	102.04	120.11	90.44	127.17
July.....	125.90	160.74	131.83	167.61	142.99	102.55	121.29	91.43	127.02
August.....	132.96	163.15	133.05	174.55	142.68	101.97	121.54	90.93	128.11
September.....	138.34	166.31	133.95	178.42	143.91	101.26	122.19	91.51	128.94
October.....	149.83	170.71	135.69	178.93	146.02	101.08	122.99	91.78	130.22
November.....	149.05	171.68	136.37	177.30	145.50	100.63	122.65	91.77	129.84
December.....	136.53	168.27	135.10	147.41	145.04	101.75	123.70	92.00	127.31
<b>1971—</b>									
January.....	143.55	170.47	138.05	172.04	145.62	103.21	125.29	94.65	130.83
February.....	147.87	172.73	139.75	179.09	149.12	102.59	124.84	94.37	132.50
March.....	156.73	177.34	141.58	186.31	148.12	105.55	130.39	96.99	134.75
April.....	163.15	177.15	142.30	187.55	148.79	107.12	131.14	97.64	135.69
May.....	149.42	176.01	142.65	180.68	151.07	107.61	128.85	98.03	135.93
June.....	151.70	176.07	144.45	187.82	153.00	109.59	129.84	98.35	138.06

<sup>1</sup> Mainly hotels, restaurants, laundries, dry-cleaning establishments and recreational and business services.

**Hours and Earnings of Hourly Rated Wage-Earners.**—The monthly survey of employment and payrolls covers statistics of hours of work and paid absence of those wage-earners for whom records of hours are maintained, together with the corresponding totals of gross wages paid. These wage-earners are mainly hourly rated production workers; information on hours is frequently not kept by employers for ancillary workers nor, in many industries and establishments, for any wage-earners. Salaried employees are excluded by definition from the series. As a result of these exclusions, data are available for fewer industries and workers than are covered in the employment and average weekly wage and salary statistics.

During the period 1966-70, there was a slight decline in average weekly hours but average hourly and weekly wages rose substantially. For the most part, upward wage-rate revisions in all industries were responsible for the increases. Technological changes, which in many cases involve the employment of more highly skilled workers at the expense of those in the lower-paid occupations, also contributed to the advance of average hourly earnings. From 1966 to 1970, average weekly wages rose 30.6 p.c. in manufacturing, 38.6 p.c. in mining and 39.8 p.c. in construction. Average hourly earnings increased by 33.8 p.c. in manufacturing, 42.7 p.c. in mining and 50.4 p.c. in construction. In 1970, average hourly earnings in manufacturing rose 7.9 p.c., in mining 13.1 p.c. and in construction 13.5 p.c. over the 1969 levels.

**12.—Annual Average Weekly Hours and Earnings of Hourly Rated Wage-Earners in Specified Industries, 1966-70, and Monthly Averages 1970 and 1971**

Year and Month	All Manufactures			Mining (incl. milling)			Construction		
	Average Weekly Hours	Average Hourly Earnings	Average Weekly Wages	Average Weekly Hours	Average Hourly Earnings	Average Weekly Wages	Average Weekly Hours	Average Hourly Earnings	Average Weekly Wages
	No.	\$	\$	No.	\$	\$	No.	\$	\$
<b>Averages—</b>									
1966.....	40.8	2.25	91.65	42.2	2.60	109.77	42.2	2.80	118.06
1967.....	40.3	2.40	96.84	41.9	2.84	119.09	41.3	3.12	128.76
1968.....	40.3	2.58	104.00	41.8	3.07	128.28	40.5	3.33	134.84
1969.....	40.0	2.79	111.72	41.4	3.28	135.94	39.8	3.71	147.68
1970.....	39.7	3.01	119.69	41.0	3.71	152.10	39.2	4.21	165.04
<b>1970—</b>									
January.....	39.8	2.92	116.30	41.4	3.59	148.72	38.7	4.06	157.19
February.....	40.0	2.93	117.36	41.4	3.63	150.41	38.9	4.10	159.78
March.....	39.5	2.96	117.14	41.3	3.73	154.20	35.7	4.12	147.11
April.....	39.8	2.99	118.84	41.0	3.66	150.12	38.7	4.17	161.42
May.....	40.0	2.99	119.69	40.6	3.72	151.17	40.0	4.14	165.47
June.....	40.1	3.01	120.65	40.5	3.67	148.84	40.3	4.09	164.89
July.....	39.3	3.00	118.06	40.6	3.65	148.12	40.5	4.11	166.10
August.....	39.9	3.02	120.57	40.7	3.68	149.72	41.7	4.18	174.35
September.....	40.1	3.02	121.16	41.1	3.75	153.90	41.6	4.29	178.43
October.....	40.1	3.06	122.67	41.6	3.80	158.16	41.0	4.35	178.38
November.....	39.9	3.09	123.30	41.6	3.83	159.32	39.6	4.46	176.52
December.....	38.0	3.17	120.53	39.9	3.84	153.08	30.7	4.49	137.68
<b>1971—</b>									
January.....	38.9	3.19	124.09	39.9	3.92	156.41	36.9	4.58	169.00
February.....	39.0	3.21	125.19	40.6	3.91	158.75	38.0	4.65	176.70
March.....	39.9	3.21	128.08	41.1	4.00	164.40	39.5	4.69	185.26
April.....	39.8	3.23	128.55	40.9	3.99	163.19	39.2	4.73	185.42
May.....	39.5	3.27	129.17	40.5	4.01	162.41	37.9	4.68	177.37
June.....	39.9	3.29	131.27	40.6	4.02	163.21	39.6	4.71	186.52

**13.—Average Weekly Hours and Earnings of Hourly Rated Wage-Earners in Specified Industries and Selected Urban Areas, 1968-70**

Industry	Average Weekly Hours			Average Hourly Earnings			Average Weekly Wages		
	1968	1969	1970	1968	1969	1970	1968	1969	1970
	No.	No.	No.	\$	\$	\$	\$	\$	\$
<b>Industry</b>									
<b>Mining (incl. milling).....</b>	<b>41.8</b>	<b>41.4</b>	<b>41.0</b>	<b>3.07</b>	<b>3.28</b>	<b>3.71</b>	<b>128.28</b>	<b>135.94</b>	<b>152.10</b>
Metal mining.....	41.2	40.7	40.3	3.20	3.38	3.84	131.55	137.68	154.68
Coal mining.....	41.8	41.9	42.1	2.34	2.59	3.09	97.66	108.58	130.37
<b>Manufacturing.....</b>	<b>40.3</b>	<b>40.0</b>	<b>39.7</b>	<b>2.58</b>	<b>2.79</b>	<b>3.01</b>	<b>104.00</b>	<b>111.72</b>	<b>119.69</b>
Durable goods <sup>1</sup> .....	40.9	40.6	40.2	2.79	3.00	3.25	113.83	121.76	130.75
Non-durable goods <sup>1</sup> .....	39.7	39.5	39.3	2.37	2.57	2.77	94.34	101.64	108.92
<b>Construction.....</b>	<b>40.5</b>	<b>39.8</b>	<b>39.2</b>	<b>3.33</b>	<b>3.71</b>	<b>4.21</b>	<b>134.84</b>	<b>147.68</b>	<b>165.04</b>
Building.....	38.6	38.0	37.5	3.42	3.82	4.36	131.95	145.30	163.36
Engineering.....	44.6	44.0	43.1	3.16	3.48	3.92	140.92	153.15	168.90
<b>Other—</b>									
Urban transit.....	41.5	41.7	42.0	3.18	3.43	3.65	132.03	143.13	153.45
Highway and bridge maintenance.....	39.3	36.2	37.2	2.41	2.49	2.70	94.97	89.89	100.37

<sup>1</sup> Durable goods manufacturing includes wood products, furniture and fixtures, primary metal industries, metal fabricating industries, machinery (except electrical), transportation equipment, electrical products and non-metallic mineral products; non-durable goods manufacturing includes all other manufacturing industries.

**13.—Average Weekly Hours and Earnings of Hourly Rated Wage-Earners in Specified Industries and Selected Urban Areas, 1968-70—concluded**

Industry, Province and Urban Area	Average Weekly Hours			Average Hourly Earnings			Average Weekly Wages		
	1968	1969	1970	1968	1969	1970	1968	1969	1970
	No.	No.	No.	\$	\$	\$	\$	\$	\$
<b>Industry—concluded</b>									
<b>Other—concluded</b>									
Hotels, restaurants and taverns.....	33.4	37.4	31.9	1.49	1.62	1.75	49.87	60.80	55.79
Laundries, cleaners and pressers.....	38.1	32.3	37.0	1.51	1.62	1.74	57.33	52.32	64.47
<b>Province Manufacturing</b>									
Newfoundland.....	41.2	41.6	40.5	2.11	2.25	2.53	86.86	93.69	102.50
Nova Scotia.....	39.7	39.8	39.2	2.06	2.20	2.45	81.80	87.85	96.05
New Brunswick.....	40.9	40.3	40.5	2.10	2.29	2.47	85.85	92.43	100.32
Quebec.....	41.0	40.8	40.4	2.33	2.50	2.68	95.33	102.07	108.52
Ontario.....	40.4	40.1	39.8	2.71	2.93	3.18	109.38	117.46	126.68
Manitoba.....	39.5	39.4	38.9	2.31	2.47	2.72	91.20	97.33	105.82
Saskatchewan.....	39.4	39.7	39.5	2.74	2.94	3.16	108.01	116.75	124.96
Alberta.....	39.3	39.4	39.1	2.64	2.90	3.18	103.93	114.19	124.20
British Columbia.....	37.7	37.4	36.8	3.23	3.48	3.71	121.64	130.27	136.69
<b>Selected Urban Area Manufacturing</b>									
Montreal.....	40.4	40.2	39.9	2.39	2.56	2.73	96.52	103.00	109.06
Toronto.....	40.5	40.3	39.9	2.60	2.84	3.06	105.13	114.40	122.11
Hamilton.....	40.1	39.7	39.4	2.96	3.17	3.51	118.79	125.67	138.06
Windsor.....	41.7	39.8	41.8	3.28	3.53	3.87	136.77	140.33	161.69
Winnipeg.....	39.2	39.1	38.8	2.27	2.45	2.70	88.77	95.59	104.73
Vancouver.....	37.4	37.2	36.5	3.13	3.40	3.64	117.30	126.44	133.03

**Subsection 2.—Earnings and Hours of Work in Manufacturing\***

Since 1946 an annual survey of earnings and hours of work in manufacturing has been conducted using (since 1948) the last week of October as the survey week. Information is collected during this normal or representative working week of the year, following generally the same concepts, definitions and coverage as in the larger establishment monthly employment survey. If strikes or other unusual working conditions distort the norm for this week, a more suitable week is substituted. Over the whole period, earnings and hours of work in manufacturing have been reported by sex and category and, since 1951, figures have been available for clerical and related workers as distinct from other salaried employees. In addition, the distribution of employees by weekly earnings has been collected periodically since 1950 and the distribution of wage-earners by hours worked or paid for was collected each year from 1946 to 1949 and periodically thereafter.

Tables 14 and 15 give figures for 1963-69. It should be noted that in 1963 there was a break in continuity with previous years. The new establishment concept introduced in 1961 drew into the manufacturing universe some activity reports, such as sales branches, which formerly reported to other industries; these are now coded to manufacturing when they form part of an establishment, the principal activity of which is manufacturing. The survey was not carried out in 1961 and 1962 and revised figures are available only from 1963. The 1960 standard industrial classification is used in Tables 16 and 17.

\* More detailed information is given in Statistics Canada annual report *Earnings and Hours of Work in Manufacturing* (Catalogue No. 72-204).



### 14.—Average Earnings of Male and Female Employees in Manufacturing, Survey Week 1963-69, and Percentage Increases over Previous Year

NOTE.—Survey week is the last week of October. This survey was not conducted in 1961 and 1962 (see p. 845).

Year	Male		Female		Both Sexes	
	Average Earnings	Increase over Previous Year	Average Earnings	Increase over Previous Year	Average Earnings	Increase over Previous Year
AVERAGE HOURLY WAGES						
	\$	p.c.	\$	p.c.	\$	p.c.
1963.....	2.13	..	1.27	..	1.94	..
1964.....	2.21	3.7	1.33	4.7	2.02	4.1
1965.....	2.33	5.4	1.41	6.0	2.14	5.9
1966.....	2.50	7.3	1.51	7.1	2.29	7.0
1967.....	2.66	6.4	1.63	7.9	2.44	10.9
1968.....	2.88	8.3	1.74	6.7	2.64	8.2
1969.....	3.12	8.3	1.92	10.3	2.86	6.1
AVERAGE WEEKLY WAGES						
	\$	p.c.	\$	p.c.	\$	p.c.
1963.....	90.04	..	49.31	..	80.79	..
1964.....	94.08	4.5	51.45	4.3	84.37	4.4
1965.....	99.50	5.8	54.88	6.7	89.39	5.9
1966.....	105.45	6.0	58.01	5.7	94.52	5.7
1967.....	111.25	5.5	61.59	6.2	99.91	5.7
1968.....	120.34	8.2	66.26	7.6	108.19	8.3
1969.....	129.35	7.3	72.39	9.3	116.11	7.3
AVERAGE WEEKLY SALARIES						
	\$	p.c.	\$	p.c.	\$	p.c.
1963.....	128.67	..	64.24	..	111.40	..
1964.....	133.64	3.9	66.51	3.5	115.59	3.8
1965.....	139.01	4.0	69.35	4.3	120.30	4.1
1966.....	147.95	6.4	75.26	8.5	128.79	7.1
1967.....	155.76	5.3	80.21	6.6	135.94	5.6
1968.....	163.56	5.0	83.56	4.2	142.06	4.5
1969.....	178.60	9.2	92.86	11.1	156.12	9.9

### 15.—Proportions of Male and Female Employees classified as Salaried Staff, Survey Week 1963-69

NOTE.—Survey week is the last week of October. This survey was not conducted in 1961 and 1962 (see p. 845).

Year	Durable Goods			Non-durable Goods			All Manufacturing		
	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
1963.....	21.7	43.9	24.5	25.0	22.2	24.0	23.3	27.4	24.3
1964.....	21.4	43.6	24.2	25.2	22.1	24.1	23.2	27.3	24.2
1965.....	21.1	42.4	23.8	25.6	22.3	24.5	23.1	27.4	24.1
1966.....	23.1	42.9	25.8	28.0	23.4	26.5	25.3	28.8	26.1
1967.....	24.4	44.5	27.1	29.0	24.8	27.6	26.5	30.2	27.4
1968.....	25.7	46.2	28.6	34.0	30.1	32.7	29.5	34.6	30.7
1969.....	24.5	42.9	27.1	29.4	25.1	28.0	26.7	30.2	27.5

### 16.—Average Hours and Earnings of Wage-Earners in Manufacturing, by Industry and Province, Survey Week 1969

NOTE.—Survey week is the last week of October; based on the revised standard industrial classification.

Industry, Province and Urban Area	Average Weekly Hours			Average Hourly Earnings			Average Weekly Earnings		
	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes
Industry	No.	No.	No.	\$	\$	\$	\$	\$	\$
Foods and beverages.....	40.9	35.5	39.4	2.79	1.90	2.58	114.09	67.43	101.54
Tobacco processing and products.....	37.7	37.8	37.7	3.61	3.11	3.37	121.77	104.67	113.18
Rubber products.....	43.2	39.5	42.5	3.27	2.04	3.07	141.32	80.67	130.71
Leather products.....	40.3	38.9	39.6	2.28	1.66	1.95	92.11	64.60	77.13
Textile products.....	42.1	38.7	40.9	2.43	1.96	2.27	102.45	75.91	92.85
Knitting mills.....	43.7	40.4	41.3	2.12	1.60	1.76	92.53	64.58	72.79
Clothing.....	39.0	37.0	37.4	2.60	1.72	1.90	101.38	63.64	71.20
Wood products.....	39.8	38.7	39.8	2.79	2.02	2.76	111.13	78.09	109.66
Furniture and fixtures.....	43.1	40.8	42.8	2.42	1.85	2.34	104.39	75.47	99.99
Paper and allied industries..	41.6	38.2	41.2	3.51	1.98	3.37	145.78	75.57	139.06
Printing, publishing and allied industries.....	38.9	35.5	38.1	2.76	2.08	3.39	146.22	74.00	129.25
Primary metal industries...	41.4	36.9	41.4	3.42	2.15	3.40	141.71	79.28	140.76
Metal fabricating industries.	41.5	38.9	41.2	3.15	2.02	3.05	130.64	78.65	125.02
Machinery (except electrical)	41.7	39.1	41.6	3.29	2.21	3.24	137.13	86.23	134.71
Transportation equipment...	42.0	37.4	41.7	3.45	2.17	3.37	145.09	81.30	140.46
Electrical products.....	41.6	38.9	40.7	3.05	2.20	2.76	126.92	85.37	112.08
Non-metallic mineral products.....	43.1	39.3	42.8	3.14	2.32	3.08	135.03	91.15	131.71
Petroleum and coal products	43.0	--	42.9	3.82	--	3.81	164.36	--	163.39
Chemicals and chemical products.....	41.7	38.6	41.1	3.25	2.01	3.03	135.67	77.51	124.53
Miscellaneous manufacturing industries.....	42.0	38.4	40.5	2.65	1.80	2.31	111.40	69.01	93.40
<b>Totals, Manufacturing</b>	<b>41.4</b>	<b>37.8</b>	<b>40.6</b>	<b>3.12</b>	<b>1.92</b>	<b>2.86</b>	<b>129.17</b>	<b>72.39</b>	<b>116.11</b>
Durable goods <sup>1</sup> .....	41.6	38.8	41.3	3.18	2.14	3.07	132.36	82.89	126.92
Non-durable goods <sup>1</sup> .....	41.2	37.5	39.9	3.03	1.85	2.65	124.93	69.15	105.59
<b>Province and Urban Area</b>									
Newfoundland.....	38.9	28.1	37.7	2.68	1.22	2.56	104.18	34.24	96.29
Nova Scotia.....	40.5	33.9	39.2	2.46	1.35	2.27	99.73	45.76	88.85
New Brunswick.....	41.4	30.6	39.2	2.58	1.39	2.39	106.65	42.61	93.68
Quebec.....	42.7	38.0	41.4	2.80	1.83	2.56	119.31	69.69	105.82
Montreal.....	42.5	38.2	41.1	2.93	1.92	2.62	124.33	73.39	107.73
Ontario.....	41.5	38.3	40.7	3.28	2.00	3.00	136.16	76.66	122.33
Toronto.....	41.9	38.9	41.0	3.28	1.97	2.91	137.52	76.54	119.36
Manitoba.....	41.0	37.0	39.9	2.81	1.71	2.54	115.45	63.40	101.55
Saskatchewan.....	41.3	41.0	41.3	3.09	1.88	2.95	127.68	77.10	121.84
Alberta.....	40.5	37.8	40.2	3.15	1.98	3.00	127.79	74.77	120.32
British Columbia.....	38.1	34.8	37.7	3.71	2.26	3.58	141.25	78.53	134.86

<sup>1</sup> The durable goods group includes wood products, furniture and fixtures, primary metal industries, metal fabricating industries, machinery (except electrical), transportation equipment, electrical products and non-metallic mineral products; the non-durable goods group includes all other manufacturing industries.

# 17.—Average Weekly Hours and Earnings of Salaried Employees and Earnings of Clerical and Other Salaried Classes in Manufacturing, Survey Week 1969

NOTE.—Survey week is the last week of October; based on the revised standard industrial classification.

Industry	All Salaried Employees				Clerical and Related Workers				Other Salaried Employees			
	Average Weekly Hours		Average Weekly Earnings		Average Weekly Earnings		Average Weekly Earnings		Average Weekly Earnings		Average Weekly Earnings	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
	No.	No.	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
<b>Food and beverages</b>	38.5	36.6	157.00	87.79	139.29	86.31	128.71	104.97	166.32	104.19	166.32	104.19
Tobacco processing and products	36.2	36.1	187.76	106.74	163.57	96.00	140.70	118.94	209.38	131.98	209.38	131.98
Rubber products	38.9	38.1	163.88	90.42	147.91	88.82	121.78	112.64	183.62	118.91	183.62	118.91
Leather products	40.1	36.8	150.81	83.19	126.61	79.74	121.78	97.92	167.81	106.29	167.81	106.29
Textile products	38.3	37.4	169.89	89.72	144.98	84.96	139.63	104.74	184.20	125.86	184.20	125.86
Textile mills	40.2	37.9	182.51	84.56	124.68	78.02	132.66	98.11	157.26	111.31	157.26	111.31
Clothing	38.9	38.0	188.56	88.00	125.12	81.52	134.80	101.52	173.10	95.96	173.10	95.96
Clothing	40.4	37.5	168.78	88.33	135.05	86.56	131.82	113.93	182.83	108.03	182.83	108.03
Wood products	38.6	38.8	163.43	81.96	136.92	79.18	129.77	102.29	183.75	113.96	183.75	113.96
Furniture and fixtures	36.7	36.7	167.02	97.22	173.01	95.22	151.17	124.93	219.87	122.65	219.87	122.65
Paper and allied industries	37.5	37.3	170.34	88.63	137.18	88.63	122.64	96.22	189.25	111.89	189.25	111.89
Printing, publishing and allied industries	36.9	35.9	105.90	98.92	179.25	86.88	140.66	122.26	215.50	121.74	215.50	121.74
Primary metal industries	38.5	37.4	174.46	91.01	157.77	89.83	135.04	112.03	196.15	119.32	196.15	119.32
Metal fabricating industries	39.4	38.2	176.70	91.01	157.77	89.83	135.04	112.03	188.30	119.32	188.30	119.32
Machinery (except electrical)	39.4	38.3	195.59	113.79	179.53	93.15	153.87	138.46	222.47	139.31	222.47	139.31
Transportation equipment	38.0	38.6	179.69	95.12	158.86	89.47	147.74	122.52	197.09	119.81	197.09	119.81
Electrical products	38.8	38.0	172.03	94.62	151.40	86.88	136.42	115.54	189.74	156.90	189.74	156.90
Non-metallic mineral products	38.4	36.5	226.00	102.60	196.10	147.98	147.98	125.02	260.55	119.20	260.55	119.20
Petroleum and coal products	36.2	34.3	185.96	96.39	161.06	81.81	144.57	113.75	199.12	134.04	199.12	134.04
Chemicals and chemical products	38.1	37.2	185.96	96.39	161.06	81.81	144.57	113.75	199.12	134.04	199.12	134.04
Miscellaneous manufacturing industries	38.9	38.2	157.96	81.81	137.68	90.39	130.23	105.38	182.21	105.39	182.21	105.39
<b>Totals, Manufacturing</b>	<b>38.8</b>	<b>37.3</b>	<b>178.60</b>	<b>92.86</b>	<b>156.12</b>	<b>80.39</b>	<b>142.50</b>	<b>116.49</b>	<b>195.66</b>	<b>114.98</b>	<b>195.66</b>	<b>114.98</b>
Durable goods <sup>1</sup>	39.5	37.9	182.45	95.79	163.20	84.01	147.39	124.55	202.05	122.96	202.05	122.96
Non-durable goods <sup>1</sup>	38.1	36.9	174.62	90.84	149.52	87.71	136.07	108.51	189.74	112.32	189.74	112.32
<b>Province and Urban Area</b>												
Newfoundland	38.4	37.6	140.94	78.67	130.03	79.14	117.93	104.14	153.15	120.56	153.15	120.56
Nova Scotia	38.9	36.9	151.31	78.69	134.89	73.01	122.39	101.08	166.61	129.61	166.61	129.61
New Brunswick	39.0	37.5	149.11	74.78	130.02	72.96	114.40	94.36	165.49	129.61	165.49	129.61
Quebec	38.4	37.1	173.85	94.43	152.96	81.59	141.72	118.78	192.91	115.27	192.91	115.27
Montreal	38.3	37.1	181.95	97.36	158.49	91.58	147.50	121.88	201.15	116.64	201.15	116.64
Ontario	39.0	37.3	183.63	93.78	159.54	81.58	144.40	116.59	200.38	129.03	200.38	129.03
Toronto	38.6	36.9	186.65	95.29	158.00	82.40	143.58	114.20	204.82	129.03	204.82	129.03
Manitoba	39.5	37.6	155.83	80.02	135.37	77.81	127.14	102.46	170.23	106.08	170.23	106.08
Saskatchewan	38.4	38.6	154.67	83.51	136.63	82.75	129.58	105.02	164.58	90.87	164.58	90.87
Alberta	39.1	37.5	165.98	86.58	150.22	84.22	137.89	115.74	179.78	111.11	179.78	111.11
British Columbia	38.7	37.5	193.44	94.08	169.42	90.88	151.87	120.77	206.82	131.93	206.82	131.93

<sup>1</sup> The durable group includes wood products, furniture and fixtures, primary metal industries, metal fabricating industries, machinery (except electrical), transportation equipment, electrical products and non-metallic mineral products; the non-durable group includes all other manufacturing industries.

## Subsection 3.—Estimates of Employment\*

Estimates of employees by province and industry are produced by adding together data from the long-standing employment and earnings survey of larger establishments, from a sample survey of smaller establishments, and from special surveys in the non-commercial sector. These estimates are available from 1961 on a monthly basis.

The estimates of employees are more reliable indicators of changes in total employment than the large-establishment employment indexes released in the publication *Employment and Average Weekly Wages and Salaries*. However, the design of the sample survey does not permit the publication of extensive geographic and industrial detail and the large-establishment employment indexes are the only source of current information of this type.

\* More detailed information is given in Statistics Canada monthly publication *Estimates of Employees by Province and Industry* (Catalogue No. 72-008).

## 18.—Estimates of Numbers of Employees, by Industrial Division, 1966-70 and by Month 1970

Year and Month	Forestry	Mines, Quarries and Oil Wells	Manufacturing			Construction	Transportation, Communication and Other Utilities
			Durables	Non-durables	Total		
	'000	'000	'000	'000	'000	'000	'000
<b>Annual Average—</b>							
1966.....	72.6	116.8	793.5	841.8	1,635.3	379.6	634.8
1967.....	71.1	118.5	794.6	847.9	1,642.5	363.4	652.1
1968.....	64.5	120.4	785.1	854.1	1,639.2	361.3	642.3
1969.....	64.9	119.5	819.9	871.5	1,691.4	377.2	662.9
1970.....	62.7	128.4	798.8	868.8	1,667.6	367.4	671.1
<b>1970—</b>							
January.....	60.1	123.4	807.1	851.6	1,658.7	329.7	647.4
February.....	57.7	125.3	810.4	851.0	1,661.4	322.0	645.5
March.....	49.9	124.8	807.7	851.5	1,659.2	325.4	645.4
April.....	43.2	124.3	804.2	852.9	1,657.0	338.4	651.1
May.....	54.7	128.4	806.0	865.4	1,671.4	364.7	667.3
June.....	71.9	132.8	811.7	889.3	1,701.0	389.6	679.4
July.....	76.7	135.2	782.3	876.9	1,659.1	399.7	686.1
August.....	77.5	135.2	818.0	902.4	1,720.4	416.1	690.2
September.....	74.1	130.7	794.5	897.8	1,692.3	412.8	695.9
October.....	68.5	128.8	789.3	881.0	1,670.3	411.9	684.8
November.....	64.6	126.7	776.1	866.7	1,642.8	383.4	683.3
December.....	52.5	124.8	778.2	838.8	1,617.0	314.7	677.3
	Trade	Finance, Insurance and Real Estate	Personal Services			Public Administration	Total, Specified Industries
			Commercial Sector	Non-commercial Sector	Total		
	'000	'000	'000	'000	'000	'000	'000
<b>Annual Average—</b>							
1966.....	920.2	248.8	545.5	913.1	1,458.7	375.6	5,814.0
1967.....	949.4	265.6	582.1	985.4	1,567.5	399.1	6,017.7
1968.....	984.5	280.7	611.3	1,068.0	1,679.3	408.1	6,189.3
1969.....	1,061.7	300.1	689.7	1,122.0	1,811.7	420.1	6,516.0
1970.....	1,095.7	306.8	719.3	1,170.6	1,889.8	449.5	6,645.3
<b>1970—</b>							
January.....	1,073.7	305.4	684.1	1,169.5	1,853.5	428.8	6,483.8
February.....	1,071.4	304.1	687.9	1,180.1	1,868.0	432.0	6,489.7
March.....	1,072.3	304.0	689.8	1,184.8	1,874.6	436.9	6,489.5
April.....	1,071.9	302.7	703.9	1,193.5	1,897.4	432.7	6,525.8
May.....	1,108.8	310.6	743.2	1,198.0	1,941.2	448.8	6,704.9
June.....	1,104.1	308.4	746.5	1,191.8	1,938.3	469.6	6,807.1
July.....	1,092.9	310.6	750.2	1,046.7	1,796.9	477.9	6,646.0
August.....	1,085.8	312.9	758.8	1,032.9	1,791.6	475.6	6,717.4
September.....	1,102.0	305.6	735.5	1,180.1	1,915.7	463.1	6,799.0
October.....	1,107.4	306.3	730.3	1,214.3	1,944.6	452.1	6,780.7
November.....	1,132.9	305.3	716.1	1,224.3	1,940.4	437.9	6,722.2
December.....	1,119.7	305.0	684.6	1,231.1	1,915.7	438.3	6,568.7



### Subsection 4.—Estimates of Labour Income\*

Labour income, as shown in Table 19, is the compensation paid to employees for services rendered either as wages and salaries or as supplementary labour income. Wages and salaries include directors' fees, bonuses, commissions, taxable allowances and benefits, some imputed earnings (e.g., those for persons in religious orders) and living allowances considered to be an additional benefit to the employee. Supplementary labour income, which consists of payments made by employers for the future benefit of employees, is composed of employers' contributions to employee welfare and pension funds, to the Workmen's Compensation Fund and to the Unemployment Insurance Fund.

\* More detailed information is given in Statistics Canada publication *Estimates of Labour Income* (Catalogue No. 72-005).

### 19.—Wages and Salaries, by Industry, and Supplementary Labour Income, 1966-70, and by Month 1970 and 1971

NOTE.—Based on the 1960 standard industrial classification. Figures are unadjusted for seasonal variation. (Millions of dollars)

Year and Month	Agriculture	Forestry	Mining	Manufacturing	Construction	Transportation, Communication and Other Utilities	Trade
<b>Annual Average—</b>							
1966.....	298	423	765	8,898	2,660	3,402	4,037
1967.....	327	453	846	9,517	2,771	3,830	4,402
1968.....	344	434	919	10,167	2,855	4,106	4,847
1969.....	352	468	959	11,258	3,112	4,575	5,482
1970.....	365	463	1,125	11,878	3,401	4,927	5,989
<b>1970—</b>							
January.....	19.3	37.2	88.3	961.8	242.4	380.6	477.3
February.....	19.2	38.9	90.3	966.1	245.4	382.8	478.1
March.....	21.4	33.5	92.3	973.0	245.5	386.7	483.7
April.....	25.0	29.4	89.8	974.6	253.0	394.9	490.0
May.....	30.1	32.5	92.3	988.0	265.6	406.5	494.9
June.....	35.8	38.2	94.7	1,013.9	296.3	415.5	507.2
July.....	41.9	42.9	95.6	990.2	298.3	420.6	501.3
August.....	47.0	44.6	96.8	1,010.3	328.1	424.6	494.3
September.....	41.6	45.8	95.8	1,011.1	333.7	425.0	503.8
October.....	33.6	45.6	97.0	1,006.5	332.5	427.6	510.5
November.....	27.1	42.1	96.6	999.6	307.0	436.9	519.8
December.....	22.8	32.8	95.3	982.6	253.3	425.5	528.1
<b>1971—</b>							
January.....	20.2	32.4	96.5	1,005.1	243.4	411.9	502.0
February.....	20.1	31.7	98.2	1,015.5	256.4	408.3	500.8
March.....	22.5	30.2	99.4	1,024.7	274.1	418.7	508.5
April.....	26.3	29.8	96.3	1,033.6	298.8	423.7	524.0
May.....	31.5	38.0	101.1	1,062.2	323.1	444.2	535.4
June.....	37.6	47.7	103.5	1,092.8	354.8	463.3	549.8
July.....	44.0	49.3	100.4	1,064.3	357.2	468.6	543.8
August.....	49.3	48.4	104.7	1,091.7	371.2	481.8	546.0
September.....	43.6	52.8	109.0	1,111.4	375.2	476.0	562.8

**19.—Wages and Salaries, by Industry, and Supplementary Labour Income, 1966-70,  
and by Month 1970 and 1971—concluded**

Year and Month	Finance, Insurance and Real Estate	Service	Public Admini- stration and Defence <sup>1</sup>	Total Wages and Salaries <sup>2</sup>	Supple- mentary Labour Income	Total Labour Income
<b>Annual Average—</b>						
1966.....	1,594	6,040	2,074	30,219	1,688	31,907
1967.....	1,827	7,053	2,386	33,440	1,835	35,275
1968.....	2,051	8,067	2,637	36,458	2,035	38,493
1969.....	2,354	9,314	3,066	40,969	2,234	43,203
1970.....	2,580	10,507	3,336	44,605	2,431	47,036
<b>1970—</b>						
January.....	208.2	840.7	258.1	3,514.7	173.8	3,688.5
February.....	207.6	838.3	264.5	3,532.2	197.3	3,729.5
March.....	209.2	849.3	256.7	3,552.5	206.4	3,758.9
April.....	211.9	856.2	261.5	3,588.0	205.3	3,793.3
May.....	213.5	865.6	273.1	3,665.4	211.2	3,876.6
June.....	216.3	878.9	286.0	3,787.0	207.9	3,994.8
July.....	218.9	873.9	294.4	3,783.6	208.8	3,992.4
August.....	218.0	877.1	287.5	3,834.1	209.1	4,043.2
September.....	217.4	893.8	283.7	3,855.2	205.4	4,060.6
October.....	219.3	907.3	283.1	3,865.7	197.4	4,063.1
November.....	219.3	912.5	288.3	3,850.9	213.4	4,064.3
December.....	220.6	913.4	299.6	3,775.8	194.8	3,970.6
<b>1971—</b>						
January.....	223.6	911.0	285.5	3,732.8	184.7	3,917.5
February.....	223.8	928.0	293.0	3,776.9	223.5	4,000.4
March.....	228.9	943.0	291.9	3,843.1	227.2	4,070.3
April.....	231.8	959.0	298.0	3,922.9	231.4	4,154.3
May.....	236.6	975.3	345.1	4,096.2	244.3	4,340.5
June.....	240.0	995.9	324.4	4,214.0	233.1	4,447.0
July.....	241.8	992.0	327.1	4,194.1	232.1	4,426.2
August.....	240.7	996.7	328.0	4,263.6	225.1	4,488.7
September.....	236.7	1,011.8	325.3	4,309.1	220.6	4,529.7

<sup>1</sup> Excludes military pay and allowances.<sup>2</sup> Includes fishing and trapping.

### Section 4.—Wage Rates, Hours of Labour and Other Working Conditions

Statistics on occupational wage rates by industry and locality, with standard weekly hours of labour, are compiled by the Canada Department of Labour and published in the annual report *Wage Rates, Salaries and Hours of Labour*. The statistics are based on an annual survey covering some 38,000 establishments in most industries and apply to the last normal pay period preceding Oct. 1. Average wage rates of time workers and average straight-time earnings of piece workers and other incentive workers for selected occupations are shown separately in the report but are combined in the calculation of industry index numbers shown in Table 20. Predominant ranges of rates for each occupation used are also given; overtime pay is excluded.

The index numbers of Table 20 measure changes in wage rates for non-office employees below the rank of foreman. They do not, however, provide a basis for comparing the level of wages in one industry with that in another. Information on concepts and methods of developing these statistics is given in the annual report.

## 20.—Index Numbers of Average Wage Rates for Certain Main Industrial Groups, 1961-70

(1961=100)

NOTE.—Figures for years prior to 1961 are not available on the 1961 base; indexes for 1956-65 on the 1949 base are given in the 1967 Year Book at p. 763 and indexes back to 1901 on the same base appear in the Canada Department of Labour publication *Wage Rates, Salaries and Hours of Labour 1965*.

Year	Logging	Mining	Manufacturing			Con- struction	Trans- porta- tion, etc.	Trade	Service	Local Govern- ment	General Index
			Durable Goods	Non- durable Goods	All Manu- facturing						
1961..	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1962..	103.9	104.0	102.1	103.3	102.7	105.0	103.1	103.5	101.9	103.3	103.1
1963..	110.1	107.0	105.1	106.7	106.0	109.1	106.0	107.9	106.6	107.4	107.0
1964..	117.5	109.6	108.9	110.5	109.7	113.9	109.8	111.0	111.7	111.5	110.9
1965..	126.4	113.3	114.4	115.6	115.0	119.8	114.3	116.9	118.4	118.1	116.5
1966..	140.2	122.7	121.2	121.9	121.6	129.8	122.3	123.9	125.5	124.6	124.0
1967..	156.0	130.2	130.0	131.0	130.5	142.0	132.8	132.5	133.9	135.9	133.4
1968..	162.5	138.9	139.7	141.4	140.6	154.9	143.4	144.5	141.8	146.7	143.8
1969..	179.8	146.2	149.7	152.5	151.2	167.0	154.9	155.2	154.0	163.4	155.1
1970..	192.8	159.4	162.3	163.2	162.9	195.5	166.2	166.1	166.4	183.3	167.8

21.—Average Wage and Salary Rates for Selected Occupations in Certain Cities  
Across Canada, Oct. 1, 1970

Industry and Occupation	Halifax, N.S.	Saint John, N.B.	Sherbrooke, Que.	Montreal, Que.	Toronto, Ont.	Hamilton, Ont.
	\$ per hr.	\$ per hr.	\$ per hr.	\$ per hr.	\$ per hr.	\$ per hr.
<b>Construction (building and structures only)—</b>						
Bricklayer and mason.....	4.20	4.10	4.40	5.06	5.70	5.48
Bulldozer operator.....	3.60	3.60	4.10	4.19	5.00	5.10
Carpenter.....	3.70	3.75	4.20	4.84	5.40	5.40
Cement finisher.....	3.88	2.85	3.95	4.59	4.90	4.75
Crane operator.....	4.00	4.10	4.10	5.14	5.60	5.60
Electrician.....	3.88	4.25	4.30	5.28	6.20	6.29
Labourer.....	2.95	2.65	3.70	3.93	3.90	4.10
Marble and tile setter.....	3.85	4.10	4.30	5.06	4.42	4.50
Painter (brush).....	3.30	3.20	4.10	4.72	4.80	4.40
Plasterer.....	3.88	4.10	4.40	5.06	5.40	5.58
Plumber.....	4.46	4.20	4.50	5.28	6.15	6.20
Sheet metal worker.....	4.46	4.20	4.50	5.05	6.04	5.05
<b>Manufacturing and Other Industries—</b>						
General labourer, male.....	2.35	2.40	2.35	2.58	2.68	3.03
Maintenance Trades—						
Carpenter.....	3.01	2.80	3.06	3.50	3.59	3.86
Electrician.....	3.40	3.53	3.48	3.80	3.96	4.22
Machinist.....	3.47	3.21	3.25	3.63	3.93	4.21
Mechanic.....	3.11	3.28	2.95	3.48	3.68	3.85
Millwright.....	3.91	3.53	3.32	3.55	3.98	4.15
Pipefitter.....	3.94	3.58	3.50	3.79	3.89	4.14
Tool and die maker.....	—	—	3.36	3.67	4.06	3.91
Welder.....	3.25	3.37	3.22	3.39	3.48	3.87
Service Occupations—						
Truck driver, light and heavy...	2.38	2.34	2.55	3.02	3.19	3.26
Trucker, power.....	2.46	2.67	2.40	3.08	3.14	3.37
	\$ per wk.	\$ per wk.	\$ per wk.	\$ per wk.	\$ per wk.	\$ per wk.
<b>Office Occupations, Male—</b>						
Bookkeeper, senior.....	126	123	126	142	149	146
Clerk, intermediate.....	105	105	101	111	115	129
Clerk, senior.....	127	132	133	142	144	153
Clerk, order.....	104	103	111	122	126	134
Draughtsman, intermediate.....	132	143	132	140	151	145
Draughtsman, senior.....	163	187	163	175	186	173

For footnote, see end of table.

21.—Average Wage and Salary Rates for Selected Occupations in Certain Cities Across Canada, Oct. 1, 1970—concluded

Industry and Occupation	Halifax, N.S.	Saint John, N.B.	Sherbrooke, Que.	Montreal, Que.	Toronto, Ont.	Hamilton, Ont.
	\$ per wk.	\$ per wk.	\$ per wk.	\$ per wk.	\$ per wk.	\$ per wk.
<b>Office Occupations, Female—</b>						
Clerk, intermediate.....	90	89	89	97	100	96
Machine Operator—						
Bookkeeping.....	74	70	77	84	92	85
Calculating.....	70	74	71	86	91	89
Secretary, senior.....	99	95	97	115	120	114
Stenographer, junior.....	79	78	83	87	91	93
Stenographer, senior.....	92	89	99	102	104	108
Switchboard operator and recep- tionist.....	73	70	81	84	90	85
Typist, junior.....	72	62	70	76	81	81
Typist, senior.....	81	76	83	89	94	90
	Winnipeg, Man.	Regina, Sask.	Saskatoon, Sask.	Calgary, Alta.	Edmonton, Alta.	Vancouver, B.C.
	\$ per hr.	\$ per hr.	\$ per hr.	\$ per hr.	\$ per hr.	\$ per hr.
<b>Construction (building and structures only)—</b>						
Bricklayer and mason.....	4.75	4.25	4.25	4.55	4.55	5.51
Bulldozer operator.....	3.60	3.85	3.85	4.05	3.85	5.22
Carpenter.....	4.60	3.95	3.95	4.70	4.70	5.50
Cement finisher.....	3.80	3.62	3.62	4.20	4.20	5.05
Crane operator.....	4.15	4.05	4.05	4.70	4.55	5.51
Electrician.....	4.80	4.55	4.55	5.55	5.55	6.35
Labourer.....	3.35	3.08	2.98	3.60	3.60	4.07
Marble and tile setter.....	4.55	4.00	4.00	4.50	4.50	5.07
Painter (brush).....	3.85	3.60	3.60	4.20	4.05	5.52
Plasterer.....	4.25	4.50	4.50	4.75	4.85	5.75
Plumber.....	5.00	4.55	4.55	5.45	5.30	6.20
Sheet metal worker.....	4.30	4.86	4.15	5.15	5.20	5.63
<b>Manufacturing and Other Industries—<sup>1</sup></b>						
General labourer, male.....	2.60	2.46	2.63	2.75	2.83	3.14
Maintenance Trades—						
Carpenter.....	3.43	3.32	3.40	3.87	3.77	4.11
Electrician.....	3.69	3.99	3.96	4.18	4.17	4.35
Machinist.....	3.53	3.37	3.69	3.75	4.05	4.11
Mechanic.....	3.35	3.81	3.54	3.67	3.53	4.19
Millwright.....	3.70	3.92	3.45	3.98	4.25	4.29
Pipefitter.....	3.68	3.75	3.69	4.06	4.12	4.35
Tool and die maker.....	3.64	—	—	3.84	3.81	4.26
Welder.....	3.49	3.64	3.61	3.87	3.84	4.28
Service Occupations—						
Truck driver, light and heavy...	2.60	2.54	2.83	2.95	2.87	3.71
Trucker, power.....	2.98	2.93	2.88	2.98	2.90	3.91
	\$ per wk.	\$ per wk.	\$ per wk.	\$ per wk.	\$ per wk.	\$ per wk.
<b>Office Occupations, Male—</b>						
Bookkeeper, senior.....	129	136	143	154	139	150
Clerk, intermediate.....	105	98	107	114	113	119
Clerk, senior.....	138	124	130	150	137	153
Clerk, order.....	111	112	106	118	115	133
Draughtsman, intermediate.....	129	126	136	140	137	149
Draughtsman, senior.....	170	154	144	163	166	176
<b>Office Occupations, Female—</b>						
Clerk, intermediate.....	87	87	92	96	93	99
Machine Operator—						
Bookkeeping.....	80	79	78	82	82	91
Calculating.....	84	88	80	86	85	94
Secretary, senior.....	107	106	101	116	109	115
Stenographer, junior.....	81	81	80	84	83	90
Stenographer, senior.....	96	92	93	98	101	103
Switchboard operator and recep- tionist.....	77	78	77	81	82	88
Typist, junior.....	70	71	71	76	75	79
Typist, senior.....	85	85	81	88	88	92

<sup>1</sup> "Other Industries" consists of logging; mining; transportation (all sectors including air transportation); storage and communication (including radio and TV); public utilities; trade; finance; and government and personal service.



Table 22 gives summary data on working conditions of plant and office employees in manufacturing industries and all industries for the years 1968-70. The percentages in this table denote the proportions that employees—plant or office—of establishments reporting specific items bear to the total number of all such employees in all establishments replying to the survey; they are not necessarily the proportions of employees actually covered by the various items. Further details and additional information are given in the annual report *Working Conditions in Canadian Industry*, compiled and published by the Canada Department of Labour and based on a survey at May 1 each year of some 38,000 reporting units.

**22.—Summary of Selected Working Conditions of Non-office and Office Employees in Manufacturing and All Industries, 1968-70**

Item	1968		1969		1970	
	Manu- facturing Industries	All Industries	Manu- facturing Industries	All Industries	Manu- facturing Industries	All Industries
COVERAGE						
Non-office Employees— Reporting establishments . . . . No. Employees . . . . . “	9,136 971,184	21,606 2,246,546	8,980 988,803	21,381 2,246,113	8,817 909,181	22,177 1,913,508
Office Employees— Reporting establishments . . . . No. Employees . . . . . “	9,222 361,993	22,953 1,201,492	9,079 358,360	22,986 1,234,264	8,786 305,716	23,806 1,120,404
PERCENTAGES OF NON-OFFICE EMPLOYEES						
Standard Weekly Hours—						
40 and under . . . . .	81	80	82	81	84	82
Over 40 and under 44 . . . . .	6	4	6	4	5	4
44 . . . . .	2	3	2	3	1	2
45 . . . . .	6	4	6	4	5	5
Over 45 and under 48 . . . . .	1	1	1	1	5 <sup>1</sup>	7 <sup>1</sup>
48 . . . . .	2	3	2	3	—	—
Over 48 . . . . .	2	2	2	2	—	—
Employees on a five-day week . . . . .	94	88	95	89	95	91
Vacations with Pay—						
Two weeks . . . . .	97	92	97	93	96	93
After: 1 year or less . . . . .	49	64	59	69	70	75
2 years . . . . .	15	10	13	9	13	10
3 years . . . . .	25	14	21	12	11	7
4-5 years . . . . .	6	3	3	2	1	1
Other periods . . . . .	2	1	1	1	1	1
Three weeks . . . . .	83	84	83	83	84	83
After: Less than 10 years . . . . .	31	45	41	51	53	57
10 years . . . . .	33	21	31	23	20	17
11-14 years . . . . .	7	8	5	3	—	—
15 years . . . . .	10	7	7	6	4	4
Over 15 years . . . . .	1	1	1	1	7 <sup>2</sup>	6 <sup>2</sup>
Four weeks . . . . .	61	64	64	66	69	69
After: Less than 25 years . . . . .	45	48	47	48	46	42
25 years . . . . .	11	8	6	6	6	8
More than 25 years and/or other provisions . . . . .	5	9	10	12	17	17

For footnotes, see end of table.

**22.—Summary of Selected Working Conditions of Non-office and Office Employees in Manufacturing and All Industries, 1968-70—concluded**

Item	1968		1969		1970	
	Manu- facturing Industries	All Industries	Manu- facturing Industries	All Industries	Manu- facturing Industries	All Industries
PERCENTAGES OF NON-OFFICE EMPLOYEES—concluded						
Paid Statutory Holidays.....	98	96	98	96	97	95
6 or less.....	6	6	5	5	4	4
7.....	6	4	5	4	4	4
8.....	55	30	30	26	17	14
9.....	34	28	38	32	39	34
More than 9.....	18	28	20	29	31	37
PERCENTAGES OF OFFICE EMPLOYEES						
Standard Weekly Hours—						
Under 37½.....	28	34	30	34	26	36
37½.....	43	42	44	43	43	44
Over 37½ and under 40.....	4	2	4	2	4	2
40.....	21	18	20	19	24	16
Over 40.....	2	2	1	2	2	2
Employees on a five-day week.....	98	97	99	98	99	98
Vacations with Pay—						
Two weeks.....	98	85	99	83	97	95
After: 1 year or less.....	90	82	93	80	90	91
2 years.....	5	3	4	2	4	3
3 years.....	2	1	2	1	2	1
5 years.....	1	—	—	—	—	—
Other periods.....	—	—	—	—	1	—
Three weeks.....	91	93	92	94	93	94
After: Less than 10 years.....	40	61	47	66	61	72
10 years.....	40	21	38	22	24	15
11-14 years.....	4	5	3	2	—	—
15 years.....	6	5	4	4	3	4
Over 15 years.....	1	—	—	—	5 <sup>2</sup>	3 <sup>2</sup>
Four weeks.....	75	80	78	82	81	84
After: Less than 25 years.....	56	57	61	63	58	48
25 years.....	12	15	8	10	5	9
More than 25 years and/or other provisions.....	7	7	10	9	19	28
Paid Statutory Holidays.....	99	99	100	100	99	99
1-6.....	2	1	1	1	1	1
7.....	3	2	2	2	2	2
8.....	21	21	44	17	15	10
9.....	43	28	52	34	39	33
More than 9.....	21	46	2	46	39	51

<sup>1</sup> Standard weekly hours over 45.

<sup>2</sup> Three weeks vacation after 11-14 years, or over 15 years.

**Wages of Farm Labour.**—The information on farm wages is provided by volunteer farm correspondents located in all provinces except Newfoundland. The rates presented in Table 23 are average wages paid to all farm help regardless of age and skill. Because the rates reported may cover a wide range of skills, of types of work and of ages of hired workers, the value of the resulting data is considered to be an indicator of trends rather than a measure of absolute wage levels.

**23.—Average Daily and Monthly Wages of Male Farm Help as at Jan. 15, May 15  
and Aug. 15, 1969-71**

Province and Year	Jan. 15				May 15				Aug. 15			
	Daily		Monthly		Daily		Monthly		Daily		Monthly	
	With Board	Without Board	With Board	Without Board	With Board	Without Board	With Board	Without Board	With Board	Without Board	With Board	Without Board
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
<b>Maritime Provinces—</b>												
1969.....	8.00	9.70	175.00	230.00	8.10	10.00	180.00	230.00	8.40	10.15	185.00	232.00
1970.....	8.10	10.10	195.00	245.00	8.30	10.60	194.00	239.00	8.90	10.70	200.00	244.00
1971.....	8.40	10.40	200.00	250.00	8.70	10.80	195.00	240.00	9.10	11.00	230.00	270.00
<b>Quebec—</b>												
1969.....	8.40	10.30	170.00	226.00	8.70	10.40	177.00	231.00	8.70	10.90	185.00	235.00
1970.....	8.50	11.00	180.00	236.00	8.90	11.20	183.00	235.00	9.00	11.20	180.00	230.00
1971.....	8.70	11.30	189.00	246.00	9.20	12.00	185.00	239.00	9.30	12.20	191.00	257.00
<b>Ontario—</b>												
1969.....	10.10	12.20	234.00	275.00	10.50	12.50	249.00	293.00	10.60	12.90	250.00	300.00
1970.....	10.40	12.70	255.00	306.00	10.70	13.60	264.00	319.00	11.20	13.50	267.00	309.00
1971.....	11.00	13.20	272.00	315.00	11.30	14.00	271.00	324.00	11.30	13.70	277.00	314.00
<b>Manitoba—</b>												
1969.....	8.70	11.10	202.00	244.00	10.20	12.40	240.00	289.00	10.50	13.10	235.00	287.00
1970.....	9.10	11.60	214.00	265.00	9.60	12.30	234.00	284.00	10.50	13.00	238.00	294.00
1971.....	9.70	12.30	221.00	275.00	10.40	13.20	248.00	300.00	11.00	13.90	243.00	317.00
<b>Saskatchewan—</b>												
1969.....	9.00	11.30	196.00	248.00	10.60	12.50	247.00	290.00	11.00	13.10	250.00	292.00
1970.....	9.30	11.70	202.00	257.00	10.00	12.30	237.00	280.00	10.60	13.00	247.00	292.00
1971.....	9.50	12.00	217.00	262.00	10.80	13.30	250.00	299.00	11.60	14.10	270.00	312.00
<b>Alberta—</b>												
1969.....	10.00	12.00	218.00	270.00	11.00	13.10	251.00	294.00	10.80	13.00	244.00	292.00
1970.....	10.20	12.50	238.00	298.00	10.60	13.10	250.00	295.00	11.00	13.40	253.00	305.00
1971.....	10.20	12.70	247.00	302.00	11.50	14.00	265.00	315.00	11.90	14.50	275.00	338.00
<b>British Columbia—</b>												
1969.....	10.40	12.50	248.00	317.00	10.60	13.00	270.00	315.00	10.60	13.00	275.00	331.00
1970.....	11.00	13.50	283.00	356.00	10.90	13.20	301.00	350.00	11.50	13.90	290.00	345.00
1971.....	11.00	13.70	291.00	345.00	12.20	14.00	303.00	352.00	12.20	14.50	302.00	358.00
<b>Totals—</b>												
1969.....	9.40	11.50	210.00	260.00	10.20	12.20	236.00	282.00	10.30	12.50	237.00	285.00
1970.....	9.70	12.00	227.00	282.00	10.10	12.60	242.00	291.00	10.60	12.90	245.00	292.00
1971.....	10.00	12.40	239.00	288.00	10.80	13.30	250.00	301.00	11.10	13.60	260.00	311.00

### Section 5.—Pension Plans\*

Very few pension plans in Canada have been in existence for more than 25 years and most of the older plans were established by governments, banks and railways. The greatest growth in pension plans and coverage began during World War II and continued through the postwar years. In 1960 there were 9,000 pension plans in Canada covering some

\* Prepared by the Pension Section, Labour Division, Statistics Canada.

1,800,000 persons and by 1970 the number of plans, exclusive of the public service superannuation funds of the Federal Government and of six provincial governments, had increased to an estimated 18,335 covering some 2,486,000 persons.

Up to 1948, most plans were of the insured type, being underwritten by either an insurance company or the Government Annuities Branch of the Canada Department of Labour. The trust fund arrangement then began to grow in popularity and is now the dominant instrument for funding pension benefits measured in terms of membership and assets held. In 1970, contributions to trustee pension funds alone amounted to \$1,054,000,000, accounting for over 75 p.c. of all contributions to private pension plans excluding government plans having no invested assets. Funds of this magnitude represent a major medium for personal savings and the investment of these funds exerts a considerable influence on the capital market.

Table 24 shows the distribution of pension business for the years 1966-70, excluding the public service superannuation funds of the Federal Government and of six provincial governments which are nominal funds only, having no invested assets.

Most trustee pension plans use the facilities of corporate trustees (trust companies) who invest the contributions, accumulate the earnings and pay benefits to the plan members. Trustee pension plan funds are also managed by individual trustees or pension fund societies. The designated trustee, corporate or individual, must invest the contributions in accordance with the trust agreement which sets forth the rights and duties of the trustee. Many of the small funds invest in the "pooled funds" of trust companies which combine the assets of many pension funds, thus providing the diversification of investments usually available only to larger funds.

#### 24.—Distribution of Pension Business among Trustee Funds, Life Insurance Company Annuities and Government Annuities, 1966-70

Item and Year	Trustee Pension Funds	Life Insurance Group Annuities <sup>1</sup>	Federal Government Group Annuities
	No.	No.	No.
<b>Funds—</b>			
1966.....	3,467	11,459	1,416
1967.....	3,789	11,718	1,398
1968.....	4,065	12,891	1,365
1969.....	4,072	13,209	1,110
1970.....	3,859	13,400 <sup>2</sup>	1,076
<b>Plan Members—</b>			
1966.....	1,554,891	563,579	122,576
1967.....	1,603,079	598,427	116,892
1968.....	1,655,962	616,911	111,503
1969.....	1,719,423	616,312	105,187
1970.....	1,771,078	616,000 <sup>2</sup>	98,925
	\$'000,000	\$'000,000	\$'000,000
<b>Contributions—</b>			
1966.....	692	174	5
1967.....	748	177	4
1968.....	863	194	4
1969.....	961	171	4
1970.....	1,054	160 <sup>2</sup>	4
<b>Assets (book value)—</b>			
1966.....	7,250	2,491	644
1967.....	8,068	2,668	636
1968.....	8,972	2,891	635
1969.....	10,003	2,969	634
1970.....	11,059	2,900 <sup>2</sup>	631

<sup>1</sup> Excludes segregated pension plan funds, with assets of \$400,507,000 in 1969.

<sup>2</sup> Estimate.



## 25.—Trusteed Pension Funds, Income, Expenditures and Assets, 1966-70

Item	1966	1967	1968	1969	1970
	No.	No.	No.	No.	No.
<b>Trust Arrangements—</b>					
(a) Corporate trustees.....	2,530	2,737	2,962	2,996	2,856
(b) Individual trustees.....	862	975	1,018	981	910
(c) Combinations of (a) and (b).....	42	46	53	63	61
(d) Pension fund societies.....	33	31	32	32	32
<b>Totals, Trusteed Funds.....</b>	<b>3,467</b>	<b>3,789</b>	<b>4,065</b>	<b>4,072</b>	<b>3,859</b>
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000
<b>Income—</b>					
Total contributions.....	692	748	863	961	1,054
Employer.....	431	474	557	591	658
Employee.....	261	274	306	370	396
Investment income.....	348	386	429	475	546
Net profit on sale of securities.....	7	19	32	48	15
Other.....	19	9	7	10	10
<b>Totals, Income.....</b>	<b>1,066</b>	<b>1,162</b>	<b>1,331</b>	<b>1,494</b>	<b>1,625</b>
<b>Expenditures—</b>					
Pension payments out of funds.....	227	257	295	333	377
Cost of pension purchased.....	11	11	9	11	16
Cash withdrawals.....	106	82	82	95	110
Administration costs.....	6	7	8	9	12
Net loss on sale of securities.....	7	6	11	10	99
Other expenditures.....	16	6	20	18	15
<b>Totals, Expenditures.....</b>	<b>373</b>	<b>369</b>	<b>425</b>	<b>476</b>	<b>629</b>
<b>Assets (book value)—</b>					
Investment in pooled funds.....	513	610	680	749	797
Investment in mutual funds.....	36	40	45	52	55
Bonds.....	4,487	4,761	5,014	5,285	5,766
Bonds of or guaranteed by Government of Canada.....	488	479	491	503	471
Bonds of or guaranteed by provincial governments.....	2,218	2,368	2,537	2,707	2,967
Bonds of Canadian municipal governments, school boards, etc.....	682	697	705	733	761
Other Canadian.....	1,090	1,207	1,269	1,326	1,555
Non-Canadian.....	9	10	12	16	12
Stocks.....	1,217	1,514	1,954	2,425	2,680
Canadian, common.....	933	1,125	1,379	1,715	2,018
Canadian, preferred.....	49	56	66	76	72
Non-Canadian, common.....	234	330	502	623	580
Non-Canadian, preferred.....	1	3	7	6	10
Mortgages.....	676	724	776	863	1,022
Insured residential (NHA).....	376	366	380	437	522
Conventional.....	300	358	396	426	500
Real estate and lease-backs.....	41	49	51	52	48
Miscellaneous—					
Cash on hand and in chartered banks.....	118	85	104	105	136
Guaranteed investment certificates.....	27	44	72	100	110
Short-term investments.....	33	56	85	173	277
Accrued interest and dividends receivable.....	64	68	75	80	90
Accounts receivable.....	37	115	114	115	75
Other assets.....	1	2	2	4	3
<b>Totals, Assets.....</b>	<b>7,250</b>	<b>8,068</b>	<b>8,972</b>	<b>10,003</b>	<b>11,059</b>

**Federal Government Annuities.**—Since 1908 the Federal Government has sold annuities and industrial pension plans under the Government Annuities Act (RSC 1970, c. G-6). The purpose of the introduction of this legislation was to encourage people to save for old age but since the need for government service in this form has decreased in recent years, reduction of the program became justified and the employment of salesmen to solicit business was ended on Nov. 30, 1967. Annuities are still available under the Act to those who ask for them. They are now administered by the Unemployment Insurance Commission.

## Section 6.—Unemployment Insurance\*

Unemployment insurance has been part of Canada's social and economic life since the Unemployment Insurance Act was passed in 1940. Since that time the basic structure of the Act has remained unaltered. Various amendments have brought new categories of workers into the plan and contributions and benefit rates have been raised periodically to keep abreast of changing economic conditions.

In 1968, when Parliament approved upward revisions of both contributions and benefit rates and broadened the scope of coverage, the Unemployment Insurance Commission was instructed to carry out a full-scale investigation of that program and to recommend appropriate changes in philosophy and structure. The Unemployment Insurance Act, 1971, effective June 27, 1971, was the result of extensive studies, the basic objectives being (a) to provide assistance to cope with the contingency of an interruption of earnings resulting from unemployment, including unemployment from illness, and (b) to co-operate with other agencies engaged in social development.

Under the Unemployment Insurance Act, 1971, coverage is universal for all regular members of the labour force for whom there exists an employer-employee relationship. There is only one measure of inconsiderable employment, i.e., less than \$30 per week or 20 times the provincial hourly minimum wage, whichever is the lesser. Universality becomes effective Jan. 2, 1972. Coverage, contributions and benefit entitlement cease at age 70.

Employers and employees absorb the benefit cost for initial benefits as well as the administration cost, with the employer rate being 1.4 times the employee rate. The government share is confined to the benefit cost for extended benefits as well as the excess cost of initial benefits that are due to a national unemployment rate greater than 4 p.c. There is no fund and employer and employee contributions are adjusted yearly. Department of National Revenue/Taxation commences collection of the contributions effective Jan. 2, 1972. Persons formerly not contributing either because of their occupation or by virtue of being over the salary ceiling will pay a preferred rate for the first three years. For those who had been occupationally excluded, the preferred rate is portable. However, in the case of persons formerly excluded because of the salary ceiling, the preferred rate continues only as long as the employee remains with the Jan. 2, 1972 employer. An experience rating formula for employers may be introduced in 1974 to reflect the additional benefit expense generated by large employers who have above-average layoff experience.

The duration of benefit under the new program is not determined solely by the length of attachment to the labour market. A claimant can draw to a maximum of 51 weeks depending on his employment history and prevailing economic conditions, provided (a) he has at least eight weeks of contributions in the last 52 and (b) he meets the conditions of availability, capability and searching for work. Persons with 20 or more weeks of insured earnings (major labour force attachment) are eligible for a wider range of benefit that includes a pre-payment of three weeks of regular benefit for work-shortage lay-offs; benefit payments when the interruption of earnings was caused by illness or pregnancy; and three weeks retirement benefit for older workers.

Sickness benefit is available for a maximum of 15 weeks for persons with major labour force attachment who have suffered an interruption of earnings due to illness, injury or quarantine (excluding workmen's compensation). If a person is taken ill while on regular claim, sickness benefit is available but the combined duration of benefits during the initial benefit period cannot exceed 15 weeks.

Maternity benefit is available for eight weeks before confinement, the week of confinement and six weeks after, to women who have had a major labour force attachment. They must also have been attached to the labour force at least 10 of the 20 weeks prior to the 30th week before the expected date of confinement.

Retirement benefit is available for three weeks. It is paid in a lump sum to claimants with a major labour force attachment who are 65-70 and who have signified they have left

\* Prepared by the Unemployment Insurance and Manpower Section, Labour Division, Statistics Canada; statistics of unemployment insurance are compiled and published by Statistics Canada from material supplied by the Unemployment Insurance Commission.

the labour force by having applied for Canada Pension Plan or the Quebec Pension Plan; and to persons over 70 years of age. In the case of those over 70, the application must be within 32 weeks of the 70th birthday as employment weeks are no longer earned after that time. The benefit is paid without a waiting period and without regard to earnings or availability.

The benefit rate for all claims will be two thirds of average insured earnings in the qualifying period to a maximum of \$100 per week and with a floor of \$20 per week. For claimants with dependants and whose average qualifying earnings are \$50 per week or less, the benefit rate is 75 p.c. During later stages of benefit all claimants with dependants draw benefit at 75 p.c. of qualifying earnings subject to the \$100 maximum.

Work-related income in excess of 25 p.c. of benefit rate is deducted. In the case of sickness and maternity, proceeds of wage loss policies are not deducted during the waiting period but are deducted after the waiting period. All work-related income is deducted during both the waiting period and after the waiting period has been served.

Because the statistics in Tables 26 to 39 refer to the former Unemployment Insurance Act, an explanation of the program under that Act follows.

The Unemployment Insurance Act, 1955 applies to all persons employed under a contract of service except: the Canadian Armed Forces; the permanent public service of the Federal Government; provincial government employees except where insured with the concurrence of the government of the province; certified permanent employees of municipal or public authorities; persons engaged in hunting and trapping, private domestic service, private-duty nursing, and teaching; workers on other than an hourly, daily or piece rate earning more than \$7,800 a year effective June 30, 1968, unless they elect to continue as insured persons; employees in a charitable institution or in a hospital not carried on for purpose of gain except where the institution or hospital consents to insure certain groups or classes of persons with the concurrence of the Commission. All persons paid by the hour, day, or at a piece rate (including a mileage rate) are insured regardless of amount of earnings.

The amount of the employee contribution is determined by the employee's weekly earnings; an equal contribution is required from the employer. The Federal Government contributes one fifth of the aggregate employer-employee contribution and defrays administrative expenses. Contributions became payable on July 1, 1941. Benefit became payable on Jan. 27, 1942 and by Mar. 31, 1970 a total of \$6,804,000,000 had been paid.

The following statement shows the current weekly rates of contribution and benefit effective June 30, 1968. The weekly contribution is based on actual earnings in the week, irrespective of the number of days worked. The benefit rates are calculated on the average weekly contributions for the last 30 weeks in the 104 weeks preceding claim. In order to qualify for regular benefit, a claimant must have at least 30 weekly contributions in the last 104 weeks prior to claim, eight weekly contributions since the start of the last preceding regular benefit period or in the last year prior to claim, whichever is the shorter period, and 24 weekly contributions since the start of the last preceding benefit period, or in the year prior to the claim, whichever is the longer period. Weekly rates of contribution and benefit under the Unemployment Insurance Act, in effect from June 30, 1968, were:—

Range of Weekly Earnings	Weekly Employee Con- tribution	Range of Average Weekly Contributions	Weekly Rates of Benefit		Earnings not Deducted	
			Person Without Dependant	Person With Dependant	Person Without Dependant	Person With Dependant
	cts.	cts.	\$	\$	\$	\$
Less than \$20.....	10 <sup>1</sup>					
\$ 20 and under \$ 30.....	20	Less than 28.....	13	17	7	9
30 " " 40.....	35	28 and under 43...	16	21	8	11
40 " " 50.....	50	43 " " 58...	19	25	10	13
50 " " 60.....	65	58 " " 73...	22	29	11	15
60 " " 70.....	80	73 " " 88...	26	33	13	17
70 " " 80.....	95	88 " " 103...	30	38	15	19
80 " " 90.....	110	103 " " 118...	34	43	17	22
90 " " 100.....	125	118 " " 133...	38	48	19	24
100 or over.....	140	133 or over.....	42	53	21	27

<sup>1</sup> A half stamp.

During the transitional period, from June 27, 1971 to Jan. 1, 1972, the following contribution rates applied:—

Range of Weekly Earnings	Weekly Contribution	Range of Weekly Earnings	Weekly Contribution
	cts.		cts.
Less than \$20.....	10	\$ 90 and under \$100.....	125
\$20 and under \$30.....	20	100 " " 110.....	140
30 " " 40.....	35	110 " " 120.....	145
40 " " 50.....	50	120 " " 130.....	150
50 " " 60.....	65	130 " " 140.....	155
60 " " 70.....	80	140 " " 150.....	160
70 " " 80.....	95	150 and over.....	165
80 " " 90.....	110		

Following are the benefits payable after June 27, 1971 in respect of a benefit period established prior to that date:—

Range of Average Weekly Contributions	June 27, 1971 to Jan. 1, 1972				After Jan. 1, 1972			
	Weekly Rate of Benefit		Earnings not Deducted		Weekly Rate of Benefit		Earnings not Deducted	
	Person without Dependant	Person with Dependant	Person without Dependant	Person with Dependant	Person without Dependant	Person with Dependant	Person without Dependant	Person with Dependant
cts.	\$	\$	\$	\$	\$	\$	\$	\$
Less than 28.....	14	19	7	10	20	20	5	5
28 and under 43.....	18	23	9	12	23	26	6	7
43 " " 58.....	21	28	11	14	30	34	8	9
58 " " 73.....	24	32	12	16	37	41	9	10
73 " " 88.....	29	36	15	18	43	43	11	11
88 " " 103.....	33	42	17	21	50	50	13	13
103 " " 118.....	37	47	19	24	57	57	14	14
118 " " 133.....	42	53	21	27	63	63	16	16
133 and over.....	46	58	23	29	70	70	18	18

The Act contains a special provision whereby the regular contribution requirements are relaxed somewhat during a 5½-month period commencing with the first week of December each year. Under this provision, claimants unable to fulfil the contribution requirements for regular benefit may draw "seasonal benefit" if they have at least 15 contribution weeks during the fiscal year, or, failing this, if they terminated regular benefit since the previous mid-May.

*Statistics on the Operation of the Act.*—In order to assess the impact of changing economic conditions on the insurance program, provision is made for collection of current operational data, such as claims filed and processed and payments made. This information is published monthly in the *Statistical Report on the Operation of the Unemployment Insurance Act* (Catalogue No. 73-001). Current claims and payment data are useful for administrative purposes and are also a source of information to the public regarding financial and other aspects of the program.

Persons wishing to draw benefit must file either an initial or a renewal claim. Where it is necessary to compute entitlement to benefit, an initial claim is taken, otherwise a renewal. In the main, initial and renewal claims combined are an approximation of recorded separations from employment during a month. However, if a claimant exhausts his benefit and wishes to be reconsidered for further benefit, an initial claim is required. Such claims, accounting for approximately 20 p.c. of the monthly volume in 1970, are not new cases of unemployment. The count of claimants at the month-end indicates the extent to which claimants maintain contact with local offices of the Commission.



**26.—Amount Paid, 1956-70, and Claims Filed, Claimants and Amount Paid, by Month, 1970 and 1971**

Year	Amount Paid	Month	Initial and Renewal Claims Filed	Claimants at Month-End	Amount Paid
	\$'000		'000	'000	\$'000
<b>1970</b>					
1956.....	210,330	January.....	266	659	76,500
1957.....	305,076	February.....	201	694	77,632
1958.....	492,901	March.....	203	705	84,019
1959.....	406,097	April.....	209	691	81,008
1960.....	481,836	May.....	166	505	74,396
		June.....	138	442	40,509
		July.....	148	439	43,854
		August.....	106	409	41,377
1961.....	493,971	September.....	121	391	37,737
1962.....	409,208	October.....	142	399	40,365
1963.....	394,163	November.....	204	480	37,583
		December.....	356	672	60,239
1964.....	344,390	<b>Totals, 1970.....</b>	<b>2,261</b>	<b>541<sup>1</sup></b>	<b>695,221</b>
1965.....	312,110				
<b>1971</b>					
1966.....	295,301	January.....	288	844	85,713
1967.....	352,645	February.....	206	888	100,928
1968.....	438,128	March.....	222	857	114,302
1969.....	498,992	April.....	209	819	100,005
		May.....	155	496	77,541
1970.....	695,221	June.....	142	420	49,200

<sup>1</sup> Month-end average.

In addition to the monthly data published on the operation of the Unemployment Insurance Act, annual tabulations are compiled regarding persons employed in insurable employment and benefit periods established and terminated. These data are published in the annual report *Benefit Periods Established and Terminated under the Unemployment Insurance Act* (Catalogue No. 73-201). Data on persons insured under the Act are obtained from a 5-p.c. sample of insurance books and contribution cards renewed at June 1 each year (10-p.c. sample prior to 1969). Included are persons engaged in insurable employment as well as persons on claim at that date.

**27.—Persons Insured under the Unemployment Insurance Act, by Province, 1966-70**

(Sampling ratio 1966-68, 10 p.c.; 1969-70, 5 p.c.)

Province	1966	1967	1968	1969	1970
	No.	No.	No.	No.	No.
Newfoundland.....	92,950	97,230	90,860	81,420	88,480
Prince Edward Island.....	15,270	16,280	15,780	25,720	19,050
Nova Scotia.....	151,180	159,170	161,040	163,510	171,520
New Brunswick.....	118,230	119,080	126,050	137,370	135,070
Quebec.....	1,278,040	1,326,300	1,314,940	1,483,330	1,485,470
Ontario.....	1,783,670	1,890,160	1,941,470	2,104,150	2,129,320
Manitoba.....	197,250	211,390	215,360	234,560	246,170
Saskatchewan.....	130,020	136,280	144,050	159,490	150,440
Alberta.....	262,330	286,120	296,740	370,130	362,500
British Columbia.....	457,840	492,760	505,770	540,320	610,580
<b>Totals.....</b>	<b>4,487,380</b>	<b>4,734,770</b>	<b>4,812,040</b>	<b>5,300,000</b>	<b>5,399,600</b>

*Benefit.*—The duration of regular benefit is related to the contribution history—one week's benefit for every two weeks' contributions in the past 104 weeks with a maximum of 52 weeks. However, contributions more than one year old cannot be used if they have already been taken into account in computing previous rights. Disqualifications for benefit include: loss of work owing to a labour dispute in which the contributor is participating or directly interested; unwillingness to accept suitable employment; being an inmate of any prison or any institution supported out of public funds; refusal to attend a course of instruction or training if directed to do so; residence outside Canada unless otherwise prescribed. Disqualification of a claimant for a period not exceeding six weeks may be imposed if an employee is discharged by reason of his own misconduct or leaves employment voluntarily without just cause or refuses suitable employment, or other specified reason.

Table 28 distributes regular benefit periods terminated by province and shows average weeks and average dollar benefit paid on these terminations. A claimant establishes a *regular benefit period* when he submits his claim in the prescribed manner and proves he has fulfilled the minimum contribution requirements. The duration of benefit and the weekly rate authorized, comprising total entitlement, are then calculated and the claimant's benefit may be drawn upon during successive intervals of unemployment. His benefit period terminates either when he has exhausted the amount authorized or when 52 weeks\* have elapsed since he established, whichever comes first.

\* Under the Training Allowances Act, 1966, the benefit period of an insured person may be extended if he (or she) is in receipt of a training allowance. The benefit period is extended by the amount of time the person is undergoing training but in no event can the benefit period extend beyond 156 weeks.

## 28.—Regular Benefit Periods Terminated, Duration and Average Amount of Benefit Paid, by Province, 1969 and 1970

NOTE.—Based on a 10-p.c. sample, except for Quebec and Ontario where a 5-p.c. sample was used.

Province	1969			1970		
	Benefit Periods Terminated	Average Weeks Paid on Termination	Average Amount Paid on Termination	Benefit Periods Terminated	Average Weeks Paid on Termination	Average Amount Paid on Termination
	No.	No.	\$	No.	No.	\$
Newfoundland.....	26,410	15.3	490	25,730	15.4	562
Prince Edward Island.....	4,420	15.2	417	4,310	14.6	446
Nova Scotia.....	36,150	13.3	385	33,340	14.8	504
New Brunswick.....	31,080	14.4	423	30,600	15.0	491
Quebec.....	276,520	15.1	450	281,640	14.8	528
Ontario.....	287,420	12.6	374	301,120	14.2	509
Manitoba.....	33,310	13.9	402	32,140	15.1	512
Saskatchewan.....	26,350	14.4	433	29,070	15.3	525
Alberta.....	41,890	12.0	363	43,150	12.9	457
British Columbia.....	91,920	13.4	410	110,940	13.2	492
<b>Totals.....</b>	<b>855,470</b>	<b>13.8</b>	<b>411</b>	<b>892,040</b>	<b>14.4</b>	<b>511</b>

Table 29 gives regular benefit periods terminated and average weeks paid, classified by age group of claimant.

**29.—Regular Benefit Periods Terminated and Duration of Benefit Paid, classified by Age Group of Claimant, 1969 and 1970**

NOTE.—Based on a 10-p.c. sample, except for Quebec and Ontario where a 5-p.c. sample was used.

Age Group	1969		1970	
	Benefit Periods Terminated	Average Weeks Paid on Termination	Benefit Periods Terminated	Average Weeks Paid on Termination
	No.	No.	No.	No.
Under 20 years.....	22,650	12.0	49,090	13.0
20-24 ".....	172,500	12.3	175,580	13.0
25-34 ".....	210,460	12.5	208,550	12.8
35-44 ".....	161,690	12.3	167,860	13.1
45-54 ".....	126,560	13.6	125,820	14.2
55-64 ".....	94,410	16.1	89,520	17.5
65 years or over.....	46,360	26.5	30,650	29.5
Unspecified.....	20,840	14.2	44,970	16.8
<b>Totals.....</b>	<b>855,470</b>	<b>13.8</b>	<b>892,040</b>	<b>14.4</b>

Table 30 gives provincial distributions of seasonal benefit periods in 1969 and 1970, average weeks and average benefit paid.

**30.—Seasonal Benefit Periods, Duration of Benefit and Amount Paid, by Province, 1969 and 1970**

NOTE.—Based on a 10-p.c. sample, except for Quebec and Ontario where a 5-p.c. sample was used.

Province	1969			1970		
	Benefit Periods	Average Weeks Paid	Average Amount Paid	Benefit Periods	Average Weeks Paid	Average Amount Paid
	No.	No.	\$	No.	No.	\$
Newfoundland.....	22,440	12.4	363	22,050	12.4	397
Prince Edward Island.....	5,390	12.7	380	5,100	12.3	402
Nova Scotia.....	18,020	10.6	322	18,460	10.8	373
New Brunswick.....	21,340	11.1	345	21,570	10.9	355
Quebec.....	86,720	9.5	293	91,540	10.1	348
Ontario.....	68,860	9.0	261	77,740	10.1	328
Manitoba.....	10,400	9.1	273	11,050	9.7	329
Saskatchewan.....	9,520	9.1	271	11,210	10.0	330
Alberta.....	10,260	8.1	250	11,400	8.7	302
British Columbia.....	29,080	9.5	316	31,960	9.7	356
<b>Totals.....</b>	<b>282,030</b>	<b>9.8</b>	<b>298</b>	<b>302,080</b>	<b>10.3</b>	<b>347</b>

## Section 7. Employment Injuries and Workmen's Compensation

**Fatal Employment Injuries.**—Data on fatal employment injuries, compiled by the Canada Department of Labour, are obtained from provincial workmen's compensation boards, the Canadian Transport Commission, other government authorities and press reports. Of the 957 fatal injuries to industrial workers that occurred during 1970, 232 were caused by collisions, derailments or wrecks, 195 were the result of falls and slips and 197 resulted from a person being struck by an object. The act of being caught in, on or between objects, vehicles, etc., accounted for 97 deaths, while inhalations, contact, absorptions, ingestions and industrial diseases claimed 82 lives. There were 50 deaths caused by contact with electric current, 43 by conflagrations, temperature extremes and explosions, 16 by over-exertion and two by striking against or stepping on objects. The remaining 43 were the result of various miscellaneous accidents.

## 31.—Fatal Employment Injuries, by Industry, 1967-70

Industry	Numbers				Percentages of Total			
	1967	1968	1969	1970 <sup>p</sup>	1967	1968	1969	1970 <sup>p</sup>
Agriculture.....	30	27	30	15	2.6	2.7	2.7	1.6
Forestry.....	106	102	88	89	9.2	10.0	7.8	9.3
Fishing and trapping.....	33	19	18	21	2.9	1.9	1.6	2.2
Mining, quarrying and oil wells.....	182	132	162	129	15.7	13.0	14.4	13.5
Manufacturing.....	186	175	207	169	16.1	17.2	18.4	17.7
Construction.....	223	217	235	186	19.3	21.3	20.9	19.4
Transportation, communication and other utilities.....	237	178	206	163	20.5	17.5	18.4	17.0
Trade.....	64	58	60	57	5.5	5.7	5.4	6.0
Finance, insurance and real estate.....	5	—	2	3	0.4	—	0.2	0.3
Service.....	55	45	50	40	4.8	4.4	4.5	4.2
Public administration.....	35	64	64	77	3.0	6.3	5.7	8.0
Not specified.....	—	—	—	8	—	—	—	0.8
<b>Totals.....</b>	<b>1,156</b>	<b>1,017</b>	<b>1,122</b>	<b>957</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

## 32.—Employment Injuries Reported and Compensation Paid by Workmen's Compensation Boards, 1969 and 1970

Year and Province	Employment Injuries Reported					Compensation Paid <sup>2</sup>
	Medical Aid Only <sup>1</sup>	Temporary Disability	Permanent Disability	Fatal	Total	
<b>1969</b>						
Newfoundland.....	5,414	4,518	113	32	10,077	3,946,606
Prince Edward Island.....	1,096	1,038	22	2	2,158	499,167
Nova Scotia.....	13,954	10,555	328	47	24,884	8,366,696
New Brunswick.....	14,926	8,462	339	26	23,753	5,206,712
Quebec.....	119,643	52,543	5,899	193	178,278	59,784,023 <sup>3</sup>
Ontario.....	229,391	126,713 <sup>4</sup>	5,153 <sup>4</sup>	275	361,532	115,083,981 <sup>3</sup>
Manitoba.....	16,807	14,231	416	67	31,521	8,354,738
Saskatchewan.....	13,659	11,196	339	34	25,228	8,417,794
Alberta.....	36,558	24,445	1,165	130	62,298	19,342,176
British Columbia.....	51,143	30,352	1,320	168	82,983	43,716,887
<b>Totals.....</b>	<b>592,591</b>	<b>284,053</b>	<b>15,094</b>	<b>974</b>	<b>892,712</b>	<b>272,718,780</b>
<b>1970<sup>p</sup></b>						
Newfoundland.....	4,961	4,839	47	36	9,883	2,784,687
Prince Edward Island.....	1,023	1,009	7	2	2,041	581,874
Nova Scotia.....	13,522	10,724	43	27	24,316	9,656,517
New Brunswick.....	15,154	8,833	327	33	24,347	6,085,479
Quebec.....	114,426	61,566	7,016	211	183,219	64,462,909 <sup>3</sup>
Ontario.....	237,845	129,140 <sup>4</sup>	5,144 <sup>4</sup>	315	372,444	140,742,370 <sup>3</sup>
Manitoba.....	15,901	14,149	503	34	30,587	9,067,576
Saskatchewan.....	12,134	8,767	369	31	21,301	7,742,842
Alberta.....	33,391	26,186	1,223	118	60,918	22,152,025
British Columbia.....	53,822	28,769	1,468	149	84,208	39,711,639
<b>Totals.....</b>	<b>502,179</b>	<b>293,982</b>	<b>16,147</b>	<b>956</b>	<b>813,264</b>	<b>302,987,918</b>

<sup>1</sup> Injuries requiring medical treatment but not causing disability for a sufficient period to qualify for compensation; the period varies among provinces.

<sup>2</sup> Includes, except where noted otherwise, payments to compensate loss of earnings, medical aid payments, cost of rehabilitation and hospitalization (not including capital expenditures) and pensions paid (not pensions awarded) for temporary and permanent disabilities; the Quebec compensation figure includes pensions awarded as well as pensions paid.

<sup>3</sup> Excludes payments by employers who make direct compensation to their employees; such employees come under Schedule II of the Ontario and Quebec Workmen's Compensation Acts.

<sup>4</sup> Estimated from combined figures of 131,866 in 1969 and 134,284 in 1970 for temporary disability and permanent disability claims.



## Section 8.—Organized Labour

### Subsection 1.—Union Membership

At Jan. 1, 1971, labour unions reported a total of 2,210,554 members in Canada, an increase of 1.7 p.c. over 1970. During the same period the number of non-agricultural paid workers in Canada increased by 2.7 p.c. and the entire labour force by 4.4 p.c. Union members thus comprised, in 1971, 33.3 p.c. of the non-agricultural paid workers and 26.5 p.c. of the total civilian labour force, compared with 33.6 p.c. and 27.2 p.c., respectively, in 1970.

Canadian Labour Congress (CLC) affiliates, with 1,654,147 members reported, accounted for 74.8 p.c. of total union membership in Canada, compared with 75.1 p.c. in 1970. Of the total in CLC affiliates in 1971, 1,147,441 members were in unions that were also affiliated with the American Federation of Labor (AFL) and Congress of Industrial Organizations (CIO) in the United States; membership of unions affiliated with the CLC but not holding affiliation with the AFL-CIO totalled 506,706, or 22.9 p.c. of the total.

Another 9.6 p.c. of total membership of unions in Canada, 212,065 members, belonged to federations affiliated with the Quebec-based Confederation of National Trade Unions (CNTU), and the remaining 15.6 p.c. belonged to various unaffiliated international and national unions and independent local organizations.

### 33.—Union Membership in Canada, 1943-71

Year	Members	Year	Members	Year	Members	Year	Members
	'000		'000		'000		'000
1943.....	665	1951 <sup>1</sup> .....	1,029	1958.....	1,454	1965.....	1,589
1944.....	724	1952.....	1,146	1959.....	1,459	1966.....	1,736
1945.....	711	1953.....	1,220	1960.....	1,459	1967.....	1,921
1946.....	832	1954.....	1,268	1961.....	1,447	1968.....	2,010
1947.....	912	1955.....	1,268	1962.....	1,423	1969.....	2,075
1948.....	978	1956.....	1,352	1963.....	1,449	1970.....	2,173
1949 <sup>1,2</sup> .....	1,006	1957.....	1,386	1964.....	1,493	1971.....	2,211

<sup>1</sup> Figures for years up to and including 1949 are as at Dec. 31; figures from 1951 are as at Jan. 1.

<sup>2</sup> Newfoundland included from 1949.

### 34.—Union Membership, by Type of Union and Affiliation, as at January 1971

Type and Affiliation	Unions	Locals	Member-ship
	No.	No.	No.
<b>International Unions.....</b>	<b>99</b>	<b>4,891</b>	<b>1,371,109</b>
AFL-CIO/CLC.....	85	4,441	1,147,441
CLC only.....	4	141	122,533
AFL-CIO only.....	4	8	531
Unaffiliated unions.....	6	301	100,604
<b>National Unions.....</b>	<b>65</b>	<b>4,899</b>	<b>771,177</b>
CLC.....	19	2,804	372,090
CNTU.....	12	1,106	211,143
Unaffiliated unions.....	34	989	187,944
<b>Directly Chartered Local Unions.....</b>	<b>137</b>	<b>137</b>	<b>13,005</b>
CLC.....	134	134	12,083
CNTU.....	3	3	922
<b>Independent Local Organizations.....</b>	<b>129</b>	<b>129</b>	<b>55,263</b>
<b>Grand Totals.....</b>	<b>430</b>	<b>10,056</b>	<b>2,210,554</b>

International unions with headquarters in the United States accounted for 62.0 p.c. of the 1971 membership, compared with 62.5 p.c. in 1970; national and regional unions, which charter locals in Canada only, made up 34.9 p.c. (34.6 p.c. in 1970). Independent local organizations and local unions chartered by the two central labour congresses, the CLC and the CNTU, accounted for the remaining 3.1 p.c. (2.8 p.c. in 1970).

In 1971, 20 unions (as compared with 19 in 1970) reported membership of 30,000 or more. Nine unions reported 50,000 or more members and these accounted for 37.0 p.c. of the total. The largest union, in terms of membership in Canada, was again the Steelworkers (AFL-CIO/CLC) with 156,000 members. Next in size were two national affiliates of the CLC—the Canadian Union of Public Employees with 138,088 members and the Public Service Alliance of Canada with 121,571. A list of the unions reporting 50,000 or more members in 1971 follows.

<i>Relative Position in 1971</i>	<i>Union and Affiliation</i>	<i>1971 Membership</i>	<i>Relative Position in 1970</i>
1	United Steelworkers of America (AFL-CIO/CLC).....	156,000	1
2	Canadian Union of Public Employees (CLC).....	138,088	2
3	Public Service Alliance of Canada (CLC).....	121,571	3
4	International Union, United Automobile, Aerospace and Agricultural Implement Workers of America (CLC)....	111,219	4
5	United Brotherhood of Carpenters and Joiners of America (AFL-CIO/CLC).....	71,645	5
6	International Brotherhood of Teamsters, Chauffeurs, Ware- housemen and Helpers of America (Ind.).....	58,918	6
7	International Brotherhood of Electrical Workers (AFL- CIO/CLC).....	55,000	7
8	Service Employees' National Federation, Inc. (CNTU)....	52,307	9
9	International Association of Machinists and Aerospace Wor- kers (AFL-CIO/CLC).....	51,136	8

Further details on the labour movement in Canada, including lists of individual unions, their membership, principal officers and the geographic distribution of their locals, is carried in *Labour Organizations in Canada*, an annual publication of the Canada Department of Labour; it is available from Information Canada, Ottawa.

### Subsection 2.—Wage Developments under Major Collective Agreements, 1970

The Canada Department of Labour publishes wage settlements data for collective agreements on a quarterly basis. The agreements covered are limited to negotiating units of 500 or more employees in all industries, with the exception of construction. The base rate for a negotiating unit is defined as the lowest rate of pay, expressed in hourly terms, for the lowest paid classification used for qualified workers in the bargaining unit. In most cases, the base rate represents pay for an unskilled or semi-skilled classification of workers. However, this is not so in contracts covering only skilled and/or professional workers. The wage data, therefore, are not necessarily representative of the average increases enjoyed by the workers in the negotiating unit as a whole. Nevertheless, the data on numbers of agreements and workers refer to all occupational groups in the negotiating unit.

Wage rate data given in Tables 35 and 36 indicate that on Dec. 31, 1970, approximately 1,476,700 workers were covered by 686 collective agreements in negotiating units of 500 or more workers in all industries except construction. The average base rate rose 19.1 cents, or 7.4 p.c., during the 12-month period ended Dec. 31, 1970, compared with an increase of 16.9 cents or 7.1 p.c. during the preceding 12-month period. On a year-over-year basis, the consumer price index rose by 1.5 p.c., comparing December 1970 with December

1968, and by 4.6 p.c. comparing December 1969 with December 1968. When the wage increases are deflated by the consumer price index increase, the average base rate increased, in real terms, 5.8 p.c. in 1970 and 2.4 p.c. in 1969.

**35.—Employees Covered by All Collective Agreements for Negotiating Units with 500 or More Employees in All Industries other than Construction, as at Dec. 31, 1970<sup>1</sup>**

Region or Province	Manufacturing Industries			Non-manufacturing Industries	All Industries except Construction
	Durable Goods	Non-durable Goods	Total Manufacturing		
	No.	No.	No.	No.	No.
Atlantic.....	6,825	8,335	15,160	42,595	57,755
Newfoundland.....	—	3,200	3,200	4,900	8,100
Prince Edward Island.....	—	—	—	—	—
Nova Scotia.....	5,725	2,760	8,475	19,165	27,640
New Brunswick.....	1,100	2,385	3,485	18,530	22,015
Quebec.....	52,865	82,030	134,895	254,190	389,085
Ontario.....	110,645	65,665	176,310	159,450	335,760
Prairies.....	4,135	3,795	7,930	96,010	103,940
Manitoba.....	2,935	1,800	4,735	28,785	33,520
Saskatchewan.....	—	—	—	20,905	20,905
Alberta.....	1,200	1,995	3,195	46,320	49,515
British Columbia.....	46,075	17,460	63,535	55,955	119,490
Multi-provincial <sup>2</sup> .....	47,600	23,550	71,150	399,480	470,630
<b>Canada.....</b>	<b>268,145</b>	<b>200,835</b>	<b>468,980</b>	<b>1,007,680</b>	<b>1,476,660</b>

<sup>1</sup> All agreements "in force", irrespective of the year of settlement; as at Dec. 31, 1970, this universe included 686 agreements covering 1,476,660 employees.

<sup>2</sup> Agreements pertaining to workers located in more than one province and one agreement pertaining to the Northwest Territories.

Additional data are available from the Canada Department of Labour on wage settlements for agreements settled during quarterly periods, including number of agreements settled, number of employees covered and duration of contracts. The agreements covered are again limited to negotiating units of 500 or more employees in all industries except construction. Details are not given here but, for 1970 as a whole, 302 contracts, affecting the wage rates of about 579,100 workers, were settled. On the average, the 302 settlements provided an annual percentage increase in base rate equal to 8.8 p.c. simple or 8.4 p.c. compound, over the term of the contracts. The comparable percentage for 1969 was 8.0 p.c. simple or 7.6 p.c. compound.

During 1970, settlements of one-year duration produced increases averaging 9.1 p.c.; those of two-year duration of 10.0 p.c. and 7.4 p.c. for the first and second years, respectively; and those of three-year duration of 10.2 p.c., 7.0 p.c. and 4.4 p.c. for the first, second and third years of the contract. These increases compare with those of 1969 as follows: one-year agreements, average increases of 8.0 p.c.; two-year agreements, average increases of 9.4 p.c. and 5.7 p.c.; and three-year agreements, average increases of 10.7 p.c., 6.6 p.c. and 5.2 p.c. for the first, second and third years, respectively, of the contract.

### 36.—Annual Percentage and Cents-Per-Hour Increases in Base-Rates under Major Collective Agreements, by Month, 1970

NOTE.—Based on all major collective agreements covering 500 or more employees in force except those in the construction industry. Data refer to rates actually paid in the month specified; no adjustments have been made for retroactive wage increases.

Month	Manufacturing					
	Durable Goods		Non-durable Goods		Total Manufacturing	
	Year-Over-Year Increase		Year-Over-Year Increase		Year-Over-Year Increase	
	p.c.	cents	p.c.	cents	p.c.	cents
January.....	6.8	18.2	7.0	16.5	6.9	17.4
February.....	6.3	16.9	6.9	16.4	6.6	16.6
March.....	6.5	17.4	7.1	16.8	6.8	17.1
April.....	6.7	18.0	7.4	17.6	7.0	17.8
May.....	6.8	18.4	6.5	15.8	6.7	17.2
June.....	6.1	16.6	6.1	14.9	6.1	15.8
July.....	6.1	16.9	4.9	12.2	5.7	14.9
August.....	6.8	18.6	5.3	13.2	6.2	16.3
September.....	6.7	18.4	6.5	16.1	6.6	17.4
October.....	7.3	20.3	7.0	17.5	7.3	19.1
November.....	6.5	18.3	7.5	18.7	6.9	18.4
December.....	7.9	22.3	7.2	18.0	7.6	20.4

	Commercial Industries except Construction		Non-commercial Industries <sup>1</sup>		All Industries except Construction	
	Year-Over-Year Increase		Year-Over-Year Increase		Year-Over-Year Increase	
	p.c.	cents	p.c.	cents	p.c.	cents
January.....	7.6	18.7	7.2	16.7	7.4	17.9
February.....	7.5	18.4	8.8	20.4	7.9	19.2
March.....	7.4	18.3	9.0	20.9	7.9	19.2
April.....	7.3	18.2	9.4	21.8	7.9	19.5
May.....	7.1	17.8	9.5	22.0	7.8	19.3
June.....	6.8	17.1	9.4	21.9	7.6	18.8
July.....	6.5	16.4	8.8	20.7	7.2	17.9
August.....	6.6	16.9	8.8	20.7	7.3	18.3
September.....	7.0	17.8	8.1	19.3	7.3	18.3
October.....	8.1	20.7	7.2	17.2	7.6	19.4
November.....	7.6	19.7	6.9	16.8	7.3	18.6
December.....	7.9	20.6	6.8	16.5	7.4	19.1

<sup>1</sup> This category consists of public administration and defence; education and related institutions; hospitals; welfare organizations; religious organizations; private households; miscellaneous services; highway and bridge maintenance; water system and other utilities.

## Section 9.—Strikes and Lockouts

Statistical information on strikes and lockouts in Canada is compiled by the Economics and Research Branch of the Canada Department of Labour on the basis of reports from Canada Manpower Centres of the Department of Manpower and Immigration and provincial departments of labour. Table 37 covers strikes and lockouts which involve five or more workers and amount to 10 or more man-days. The developments leading to work stoppages are often too complex to make it practicable to distinguish statistically between strikes on the one hand and lockouts on the other. However, a work stoppage that is clearly a lockout is not often encountered.

The number of workers involved includes all workers reported on strike or locked out, whether or not they all belonged to the unions directly involved in the disputes leading to work stoppages. Workers indirectly affected, such as those laid off as a result of a work stoppage, are not included. Duration of strikes and lockouts in terms of man-days is calculated by multiplying the number of workers involved in each work stoppage by the number of working days the stoppage was in progress. The data on duration of work stoppages in man-days are provided to facilitate comparison of work stoppages in terms of a common denominator. They are not intended as a measure of the loss of productive time to the economy.



## 37.—Strikes and Lockouts, by Industry, 1970 with Totals for 1966-70

Industry	Strikes and Lockouts Beginning During Year	Strikes and Lockouts in Existence During Year		
		Strikes and Lockouts	Workers Involved	Duration in Man-Days
	No.	No.	No.	No.
<b>Agriculture</b> .....	—	—	—	—
<b>Forestry</b> .....	4	5	403	2,010
<b>Fishing and Trapping</b> .....	—	—	—	—
<b>Mines</b> .....	14	15	6,876	53,680
Metal.....	8	9	2,733	41,710
Mineral fuels.....	2	2	3,680	7,180
Non-metal.....	4	4	463	4,790
Quarries.....	—	—	—	—
Incidental services.....	—	—	—	—
<b>Manufacturing</b> .....	236	263	92,011	3,630,670
Food and beverages.....	30	33	5,820	183,950
Tobacco products.....	1	1	320	18,720
Rubber.....	4	5	1,053	49,130
Leather.....	3	3	422	6,520
Textiles.....	5	7	795	10,110
Knitting mills.....	1	1	550	2,750
Clothing.....	4	4	408	23,690
Wood.....	21	25	4,331	136,240
Furniture and fixtures.....	8	8	2,171	26,640
Paper.....	24	29	14,897	360,570
Printing and publishing.....	8	9	1,969	80,920
Primary metals.....	10	10	4,124	174,390
Metal fabricating.....	22	26	5,027	75,980
Machinery.....	12	12	1,411	46,190
Transportation equipment.....	19	19	32,247	1,849,120
Electrical products.....	27	29	8,259	340,600
Non-metallic mineral products.....	19	21	3,013	99,750
Petroleum and coal products.....	1	1	11	310
Chemical products.....	12	13	3,048	40,050
Miscellaneous manufacturing.....	5	7	2,135	105,040
<b>Construction</b> .....	108	109	112,533	2,156,890
<b>Transportation and Utilities</b> .....	46	48	35,502	379,990
Transportation.....	26	28	7,651	90,690
Storage.....	1	1	60	3,000
Communication.....	9	9	25,140	234,500
Power, gas and water.....	10	10	2,651	51,800
<b>Trade</b> .....	38	42	2,214	46,220
<b>Finance</b> .....	—	—	—	—
Financial institutions.....	—	—	—	—
Insurance and real estate.....	—	—	—	—
<b>Service</b> .....	45	47	9,458	239,440
Education.....	20	20	3,675	26,730
Health and welfare.....	9	10	3,602	145,420
Religious organizations.....	—	—	—	—
Recreational services.....	3	3	160	2,150
Services to business.....	1	1	23	20
Personal services.....	9	10	1,847	49,070
Miscellaneous services.....	3	3	151	16,050
<b>Public Administration</b> .....	12	13	2,709	30,660
Federal administration.....	1	1	475	710
Provincial administration.....	—	—	—	—
Local administration.....	11	12	2,234	29,950
Other government offices.....	—	—	—	—
<b>Totals</b> .....	1970	503	542	261,706
	1969	566	595	306,799
	1968	559	582	223,562
	1967	498	522	252,018
	1966	582	617	411,459
				6,539,560
				7,751,880
				5,082,732
				3,974,760
				5,178,170

# CHAPTER XVIII.—TRANSPORTATION

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*The interpretation of the symbols used in the tables throughout the Year Book  
will be found on p. vii of this volume.*

The important role played by transportation in the history and economic development of Canada has been told often and well. The history of Canadian transportation may be divided into three distinct stages—the early or development stage lasting up to about 1920, the monopolistic stage from 1920 to about 1950, and the competitive stage beginning in the early 1950s.

The early settlers of Canada depended almost exclusively on transport by water. Long before Confederation, public works such as canals and docks were built by local governments for the purposes of defence and internal economic development. However, as the movement of goods and people became heavier, waterways and canals were found to be inadequate as transportation routes and the railway came into use. The first was opened in 1836 but the real railway boom began in the 1850s, and their construction or promised construction formed part of the Confederation scheme of 1867. The promised construction of the Intercolonial Railway from Central Canada to the Maritimes was written into the British North America Act of 1867. Similarly, one of the conditions under which British Columbia joined Confederation in 1871 was that the Dominion Government undertake the construction of a railway connecting it with the rest of the country and in 1874 work started on the construction of a transcontinental line. The successful completion of the Canadian Pacific Railway in 1885 marks the end of this part of Canadian railway history. By 1905, Canada was committed to the building of two additional transcontinental rail lines—the Canadian Northern and the Grand Trunk Pacific. The expectation that these railways would operate profitably proved ill-founded as both (as well as the Grand Trunk Railway Company) collapsed as privately owned enterprises. A Royal Commission in 1917 recommended that all three railways be consolidated with other government-owned railways; this proposal was accepted and the present Canadian National Railway System was founded. In the late eighteenth century Canada was one of the largest ship-owning

nations in the world. However, by 1900, because of stiff foreign competition and the advent of iron and steel ships, Canadian ocean shipping tonnage had decreased by nearly half.

The second period of Canadian transportation history, 1920-50, was characterized by the rapid development of different, competing modes of transport. The motor vehicle emerged as one of the dominant features and not only revolutionized the transportation industry but became indispensable to modern living; registrations increased nearly tenfold from 280,000 in 1920 to 2,400,000 in 1949. Air service for the conveyance of passengers, mail and freight started in 1924 and later in the 1920s flying services were in operation between major urban centres. In 1937 the Canadian Government established Trans-Canada Air Lines (now Air Canada) as a national airline which, by the end of that decade, operated regular passenger services between the largest cities of the country. Equally important in the field of civil aviation was the amalgamation of a number of independent airlines to form Canadian Pacific Airlines. At the same time during this period, Canadian international sea-borne shipping in Canadian vessels had been declining due partly to the depression and partly to competition from other nations. High wages, depreciation and heavy interest charges also had a depressing effect on Canadian shipping.

In the late 1920s, the Canadian Government attempted to rehabilitate and unify the various individual and often competing railway companies. Despite all these efforts the financial position of the railways deteriorated during the depression years and did not improve until the outbreak of World War II. During the war, railways assumed the main burden of carrying food, ammunition and troops. Railway passenger traffic reached its peak in 1944 when 60,000,000 passengers were carried and then began to decline with the increasing use of the automobile and bus for short or medium distances and of air carriers for medium and long distances.

Since the end of the Second World War, the transportation field has become highly competitive. The growth of highway transport has been one of the most important developments. Its amazing growth may be traced directly to the great technical advances that have been made in the design and operating efficiency of motor vehicles and also to the development of secondary manufacturing industries, the decentralization of industry and the growth of metropolitan areas. Long-distance highway transport became important in the early 1950s and the construction of the Trans-Canada Highway in the following years gave a further direct impetus to the growth of the industry.

The St. Lawrence Seaway, opened 1959, has been of great economic benefit to Canada by permitting the low-cost movement of such bulk commodities as wheat, iron ore and coal. There has been some speculation that the Seaway might soon become obsolete due to technological progress currently taking place in transportation. There would seem to be little doubt that changes such as container ships, giant tankers, unit trains, etc., will certainly influence the future pattern of Seaway traffic.

Pipelines came rapidly into the picture following the discovery of vast petroleum and gas reserves in Western Canada in the late 1940s. By 1950, there were 1,400 miles of trunk pipeline in operation in Canada and just six years later the total was 5,807 miles. This mileage has grown into a vast network which is making possible the economical exploitation of Canada's tremendous resources of oil and gas. In the early 1950s resource developments and the building of defence projects in the Canadian North gave a great impetus to the growth of air freight but, more recently, the advance has been mainly in the area of intercity operations.

The airlines' share of intercity passenger-mile traffic carried by public conveyances rose to 37 p.c. by 1968, a growth attributable to the demand for fast service and to the revolutionary technological developments that have occurred in this industry, mainly the development of the turbo prop and jet engines which permitted the use of larger and more efficient aircraft. During this period, Canada's two major airlines—Air Canada and Canadian Pacific (CP Air)—became world carriers, Air Canada ranking among the largest.

Automobiles now account for more than four fifths of all intercity passenger travel and this, together with the growth of travel by air, has had an adverse effect on intercity bus travel which has declined more than 50 p.c. since 1950. The railways, too, have lost traffic in the past 20 years, especially passenger traffic, for the same reason. Nevertheless, important advances have been made in the rail transport field, the most outstanding being, perhaps, their conversion to diesel power. Complex programs of plant and equipment modernization were undertaken and centralized traffic control devices, electrically controlled classification yards, piggybacks and unit trains were developed to fight the competition as well as to supply better service. It should be noted also that the railways are repeating in the Canadian North the essential services they performed in the early history of Canada when great isolated areas were being opened up to industry and development.

Thus, the Canadian transportation environment has changed fundamentally in the past 20 years and will keep changing as each mode of movement, in competition with the others, continues to take advantage of technological developments in its own area and continues to adapt to changing economic requirements.

## PART I.—RAIL TRANSPORT\*

The Canadian railway scene is dominated by two giant transcontinental systems, supplemented by a number of regional railways. The two largest railway companies control a wide variety of Canadian and international transport and communications services. The government-owned Canadian National Railway System is the country's largest public utility and operates the greatest length of trackage in Canada. It serves all ten provinces as well as the Great Slave Lake area of the Northwest Territories. In addition, it operates a highway transport service, a fleet of coastal steamships, a chain of large hotels and resorts, a telecommunications service, and a scheduled Canadian and international air service (see p. 921). The Canadian Pacific Railway Company is a joint-stock corporation operating a railway service in eight provinces. It is also a multi-transport organization, operating, in addition to its railways, a domestic truck network, a fleet of inland, coastal and ocean-going vessels, a chain of year-round and resort hotels, a telecommunications service, and a domestic and foreign airline service (see p. 922). The British Columbia Railway (formerly the Pacific Great Eastern Railway) operates over a 1,000-mile route from North Vancouver to Fort Nelson in northeastern British Columbia. The Northern Alberta Railway, jointly owned by CP and CN, serves the area north of Edmonton with a 900-mile system. Northern Ontario is served by the provincially owned Ontario Northland Railways with a 600-mile system stretching from North Bay to Moosonee, and by the privately owned Algoma Central Railway operating over 300 miles of line between Sault Ste. Marie and Hearst.

Of the total railway revenue recorded in Canada in 1970, Canadian National contributed 50.7 p.c. and Canadian Pacific 36.7 p.c. The Quebec North Shore and Labrador Railway, built primarily to transport ore and concentrates from the iron mines of the Schefferville and Wabush areas of Labrador and Quebec to water transportation facilities on the St. Lawrence River, accounted for 3.3 p.c. of the revenues. Other railways contributing 1 p.c. or more to the total revenue figure were the Pacific Great Eastern 1.8 p.c., the Ontario Northland 1.1 p.c. and the Chesapeake and Ohio 1.0 p.c.

Even though the railways have in recent years faced strong competition from highway and air transport for the movement of people and much of the commodity trade, they are still indispensable for carrying bulk commodities and thus are necessary to the development of natural resources located in isolated areas of this great country. Only the pipelines have competed with the railways in this respect by providing an economical means of transporting the products of the oil and gas fields for long distances overland, and it is altogether probable that pipelines for transporting solids will, before long, constitute additional competition.

\* The statistical data in this Part were revised in the Transportation and Public Utilities Division, Statistics Canada; more detailed information is given in the annual reports of the Division.



(It is interesting to note that Canadian Pacific is in the forefront of research in this field.) The rapid growth of containerization in recent years has made the integration of the services of railway, highway, shipping and other modes of transport of growing importance. However, the two major railways of Canada, with their multi-transport interests, are in an excellent position to face this and other trends appearing in the transportation industry. Canadian railways have evolved over the past 100 years from a position of virtual monopoly in the movement of goods and people by rail, through a highly competitive stage to the present system of co-operation and co-ordination with other modes of transport. The latter approach permits each mode of transport to concentrate on the particular function it can perform most efficiently, thus establishing the most effective and economical system of transportation services possible.

**Government Aid to Railways.**—In order that the private railways of Canada might be constructed in advance of settlement as colonization roads or through sparsely settled districts where little traffic was available, it was necessary for federal and provincial governments and even for municipalities to extend some form of assistance. The form of aid was usually a bonus of a fixed amount for each mile of railway constructed and, in the early days, grants of land were also made other than for right-of-way. As the country developed, objections to the land-grant method became increasingly apparent and aid was given more frequently in the form of a cash subsidy for each mile of line, a loan or a subscription to the shares of the railway. Guarantees of debenture issues came later and, since the formation of the Canadian National Railways, all debenture issues of that System, except those for rolling-stock, have been guaranteed by the Federal Government. During the era of railway expansion before 1918, provincial governments guaranteed the bonds of some railway lines that afterwards were incorporated in the Canadian National Railway System. These bonds as they mature or are called are paid off by the Canadian National Railways, in large measure through funds raised by the issue of new bonds with Federal Government guarantee. Railway bonds guaranteed by the Government of Canada at Dec. 31, 1971 amounted to \$816,275,500.

As discussed on p. 941, the National Transportation Act (RSC 1970, c. N-17), administered by the Canadian Transport Commission, expresses a national transportation policy for Canada aimed at the development of "an economic, efficient and adequate transportation system making the best use of all available modes of transportation at the lowest total cost". This law is intended to provide the railways with greater freedom to meet the competition with which they are faced and to develop as an integral part of today's complex transportation system.

Under the Act, the 1966 level of Federal Government rail subsidy of \$110,000,000 a year will decline by \$14,000,000 a year until it disappears at the end of 1974. The Crownsnest Pass rates on grain and flour from Western Canada and the rates under the Maritime Freight Rates Act remain in force. The rates under the Maritime Freight Rates Act are subsidized under the provisions of that Act.

**Government Aid to Truckers.**—Effective July 15, 1969, the Atlantic Region Freight Assistance Act provided for federal assistance to truckers, similar to that provided to railways under the Maritime Freight Rates Act, in respect of the movement of goods from points within the Provinces of Nova Scotia, Prince Edward Island and New Brunswick, the Island of Newfoundland and that portion of the Province of Quebec south of the St. Lawrence River and east of Quebec Highway 23 to points in Canada outside of that territory. On Oct. 1, 1970, similar federal assistance was authorized in respect of movements via highway transport within that territory.

**Track Mileage.**—The first railway to be built in Canada—the Champlain and St. Lawrence Railroad between Laprairie and St. Johns (St. Jean), Que.—was officially opened for service on July 21, 1836. However, the first great period of railway construction did

not take place until the 1850s when the Grand Trunk and the Great Western Railways were built as well as numerous smaller lines. The building of the Intercolonial and the Canadian Pacific Railways contributed to another period of rapid expansion in the 1870s and 1880s and, in the last period of extensive railway building (1900-17), the Grand Trunk Pacific, National Transcontinental and Canadian Northern Railways were constructed. Little change has occurred in the total track mileage in Canada since the 1920s. There has been some recent construction, including the extension of the British Columbia Railway (formerly the Pacific Great Eastern Railway) to Fort Nelson, but new construction had been largely offset by the abandonment of unprofitable lines, at least up until 1969.

### 1.—Railway Track Mileage Operated, 1900-70

FIRST MAIN TRACK MILEAGE <sup>1</sup>		TRACK MILEAGE BY AREA AND TYPE					
Year	Miles in Operation	Area and Type of Track	1966 <sup>2</sup>	1967	1968	1969 <sup>3</sup>	1970
	No.		No.	No.	No.	No.	No.
1900.....	17, 657	First Main—					
1905.....	20, 487	Newfoundland.....	936	936	936	943	944
1910.....	24, 731	Prince Edward Island.....	279	252	254	254	254
1915.....	34, 882	Nova Scotia.....	1, 313	1, 313	1, 301	1, 301	1, 301
1920.....	38, 805	New Brunswick.....	1, 671	1, 667	1, 665	1, 665	1, 665
1925.....	40, 350	Quebec.....	5, 328	5, 327 <sup>2</sup>	5, 328	5, 329	5, 329
1930.....	42, 047	Ontario.....	9, 965	9, 979	10, 045	10, 045	10, 038
1935.....	42, 916	Manitoba.....	4, 735	4, 735	4, 746	4, 746	4, 746
1940.....	42, 565	Saskatchewan.....	8, 567	8, 567	8, 565	8, 565	8, 565
1945.....	42, 352	Alberta.....	5, 680	5, 680	5, 650	5, 950	6, 245
1950 <sup>4</sup> .....	42, 979	British Columbia.....	4, 322	4, 315	4, 281	4, 289	4, 370
1955.....	43, 444	Yukon Territory.....	58	58	58	58	58
1960.....	44, 029	Northwest Territories.....	—	—	—	129	129
1961.....	43, 689	United States.....	339	339	339	339	339
1962.....	43, 654						
1963.....	43, 623	Totals, First Main.....	43, 193	43, 168	43, 168	43, 613	43, 983
1964.....	43, 355						
1965.....	43, 157	Second main.....	1, 999	1, 990	1, 984	1, 956	1, 954
1966.....	43, 193 <sup>2</sup>	Other main.....	57	65	65	65	64
1967.....	43, 168	Industrial.....	1, 313	1, 379	1, 466	1, 461	1, 498
1968.....	43, 168	Yard and sidings.....	11, 738	11, 928	11, 975	12, 019	12, 130
1969.....	43, 613						
1970.....	43, 983	Grand Totals <sup>4</sup> .....	58, 300	58, 530	58, 658	59, 114	59, 629

<sup>1</sup> Defined as a single track extending the entire distance between terminals, upon which the length of the road is based.

<sup>2</sup> Includes 190 miles of track of the Cartier Railway which began operations in 1963 but was not included in the statistics until 1967.

<sup>3</sup> Newfoundland included from 1950.

<sup>4</sup> Excludes joint track amounting to 74 miles in 1966, 143 miles in 1967, 140 miles in 1968, 141 miles in 1969 and 140 miles in 1970.

**Rolling-Stock.**—Table 2 shows the numbers of the various types of freight and passenger equipment in operation in 1969 and 1970 compared with 1960, revealing a generally downward trend prior to 1969 in all types except privately owned cars. The latter, which include cars owned by non-rail industrial firms such as oil, chemical and railway car leasing companies that furnish freight cars to, or on behalf of, any railway line, have increased greatly in number. The figures of rolling-stock in operation do not reflect the offsetting trend toward larger, more efficient cars and locomotives or the steady improvement in speed of movement facilitated by modernized handling and terminal services. Each year, hundreds of units, particularly freight cars, are converted and modified to make them suitable for specific types of traffic or are replaced by special-purpose equipment designed for distinctive hauling jobs. The average capacity of all freight cars was 58.2 tons in 1970 compared with 51.4 tons in 1960. Also, although the number of diesel-electric locomotives in service has remained fairly static over this period, it should be noted that an extensive program of power upgrading has been followed by the railway companies.

## 2.—Railway Rolling-Stock in Operation as at Dec. 31, 1960, 1969 and 1970

Type	1960	1969	1970	Type	1960	1969	1970
	No.	No.	No.		No.	No.	No.
<b>Locomotives</b> .....	<b>3,752</b>	<b>3,316</b>	<b>3,417</b>	<b>Freight Cars</b> .....	<b>191,553</b>	<b>188,268</b>	<b>188,737</b>
Steam.....	403	—	—	Automobile.....	7,249	4,737	2,178 <sup>1</sup>
Diesel-electric.....	3,308	3,297	3,399	Ballast.....	3,128	2,856	2,639
Electric.....	41	19	18	Box.....	111,217	101,819	101,746
<b>Passenger Cars</b> .....	<b>5,119</b>	<b>2,942</b>	<b>2,801</b>	Flat.....	12,645	16,430	18,043
Coach.....	1,342	793	777	Gondola.....	20,310	20,721	20,975
Combination.....	172	81	74	Hopper.....	15,578	22,480	24,496
Colonist.....	88	32	29	Ore.....	5,930	6,684	6,735
Dining.....	149	130	119	Refrigerator.....	10,076	7,549	6,673
Parlour.....	137	134	128	Stock.....	4,917	2,945	2,827
Sleeping.....	861	520	482	Tank.....	472	511	487
Baggage, express and postal.....	2,218	1,105	1,037	Other.....	31	1,536	1,938
Self-propelled.....	111	115	122	<b>Privately Owned Cars</b> .....	<b>5,031</b>	<b>16,090</b>	<b>16,211</b>
Other.....	41	32	33	Tank.....	4,999	15,339	14,957
				Other.....	32	751	1,254

<sup>1</sup> Decrease in 1970 reflects conversion by one major railway of box-type auto cars to ordinary box cars.

**Traffic, Employment and Finance Statistics.**—Statistics presented under this heading are for the Canadian National Railways, the Canadian Pacific Railway Company and 22 other common carrier lines whose gross revenues are \$500,000 or more annually. Excluded are the British Columbia Hydro and Power Authority Railway line and the Cartier Railway, and lines with annual revenues of less than \$500,000 annually, whose operations account for under 2 p.c. of the total.

Table 3 gives traffic and employment statistics for the above railways for the years 1966-70 and Table 4 gives similar data for the Canadian National and Canadian Pacific railways separately for 1969 and 1970.

## 3.—Statistics of Total Railway Traffic and Employment, 1966-70

(Excludes data *re* the British Columbia Hydro and Power Authority Railway and the Cartier Railway in Quebec)

Item	1966	1967	1968	1969*	1970
Miles of road operated (monthly av.)...No.	43,953.2	43,917.3	44,029.9	44,143.7	44,326.8
<b>Freight—</b>					
Tons carried, revenue <sup>1</sup> .....tons	237,718,214	237,121,248	242,653,709	231,719,434	261,101,357
Ton-miles, revenue.....'000	94,944,223	92,239,045	93,146,935	94,687,799	108,170,719
Ton-miles, revenue and non-revenue...“	96,805,689	94,229,101	95,354,432	97,170,505	110,935,320
<b>Passengers—</b>					
Revenue passengers <sup>2</sup> .....No.	23,194,018	26,853,288	24,603,634	23,699,848	23,838,815
Revenue passenger-miles.....“	2,587,435	3,170,889	2,626,345	2,415,633	2,270,199
<b>Gross Ton-Miles—</b>					
Freight train.....'000	195,421,157	190,337,589	191,238,754	194,695,834	216,575,181
Passenger train.....“	19,380,589	20,957,337	16,859,619	14,915,067	13,165,769
<b>Totals, Ton-Miles.....'000</b>	<b>214,801,746</b>	<b>211,294,926</b>	<b>208,098,373</b>	<b>209,610,901</b>	<b>229,740,950</b>
<b>Train-Miles—</b>					
Freight service.....No.	68,363,326	64,774,033	59,764,547	60,105,832	62,548,237
Passenger service.....“	27,625,417	30,072,080	28,366,110	27,170,887	24,743,057
Work service.....“	1,921,822	1,963,041	1,851,476	2,639,958	2,367,460
<b>Totals, Train-Miles.....No.</b>	<b>97,909,565</b>	<b>96,809,154</b>	<b>89,982,133</b>	<b>89,916,677</b>	<b>89,658,754</b>

<sup>1</sup> Tonnage shown is sum of tonnages carried by individual railways; thus traffic handled by more than one railway (interline) is included more than once.

<sup>2</sup> Footnote <sup>1</sup> applies also to number of revenue passengers.

## 3.—Statistics of Total Railway Traffic and Employment, 1966-70—concluded

Item	1966	1967	1968	1969*	1970
Car-Miles—					
Freight.....'000	4,003,515	3,840,876	3,791,003	3,860,857	4,208,207
Passenger....."	276,070	303,473	246,094	217,016	191,454
<b>Totals, Car-Miles.....'000</b>	<b>4,279,585</b>	<b>4,144,349</b>	<b>4,037,097</b>	<b>4,077,873</b>	<b>4,399,661</b>
Railway employees.....No.	130,790	130,712	120,627	118,380	116,053
Railway payroll.....\$'000	762,762	836,994	835,868	881,762	928,594
Payroll chargeable to railway operating expenses....."	698,318	764,081	755,584	797,443	839,594

## 4.—Statistics of Railway Traffic and Employment for the Canadian National Railways, the Canadian Pacific Railways and 24 Major Carriers, 1969 and 1970

Item	Canadian National Railways		Canadian Pacific Railways		Totals, 24 Railways	
	1969	1970	1969	1970	1969	1970
Miles of road operated (monthly av.).....No.	22,903.5	23,085.4	16,597.7	16,601.0	44,143.7	44,326.8
Freight—						
Tons carried—revenue <sup>1</sup> .....tons	92,061,440	93,946,002	67,240,263	77,400,405	231,719,434	261,101,357
Ton-miles—revenue.....'000	47,459,616	51,952,251	36,176,496	41,993,800	94,687,799	108,170,719
Ton-miles—revenue and non-revenue....."	49,117,063	53,727,989	36,905,797	42,801,919	97,170,505	110,935,320
Passengers—						
Revenue passengers <sup>2</sup> .....No.	13,094,014	12,871,646	5,076,242	5,306,366	23,699,848	23,838,815
Revenue passenger-miles.. '000	1,773,743	1,687,887	484,864	427,549	2,415,633	2,270,199
Gross Ton-Miles—						
Freight train.....'000	99,753,476	107,145,066	74,482,572	83,699,974	194,695,834	216,575,181
Passenger train....."	11,512,653	9,931,427	2,778,588	2,619,160	14,915,067	13,165,769
<b>Totals, Ton-Miles.....'000</b>	<b>111,266,129</b>	<b>117,076,493</b>	<b>77,261,160</b>	<b>86,319,134</b>	<b>209,610,901</b>	<b>229,740,950</b>
Train-Miles—						
Freight service.....No.	31,130,085	31,556,764	23,112,391	24,392,790	60,105,832	62,548,237
Passenger service....."	19,272,066	17,546,334	5,679,807	5,015,159	27,170,887	24,743,057
Work service....."	2,112,035	1,796,227	271,406	249,943	2,639,958	2,367,460
<b>Totals, Train-Miles....No.</b>	<b>52,514,186</b>	<b>50,899,325</b>	<b>29,063,604</b>	<b>29,657,892</b>	<b>89,916,677</b>	<b>89,658,754</b>
Car-Miles—						
Freight.....'000	2,024,820	2,145,696	1,475,905	1,619,986	3,860,857	4,208,207
Passenger....."	162,384	139,720	42,391	40,090	217,016	191,454
<b>Totals, Car-Miles.....'000</b>	<b>2,187,204</b>	<b>2,285,416</b>	<b>1,518,296</b>	<b>1,660,076</b>	<b>4,077,873</b>	<b>4,399,661</b>
Railway employees.....No.	68,290	66,601	40,887	39,719	118,380	116,053
Railway payroll.....\$'000	511,060	536,322	298,729	310,497	881,762	928,594
Payroll chargeable to railway operating expenses.."	456,627	478,887	272,936	284,027	797,443	839,594

<sup>1</sup> Total tonnage for 24 railways is sum of tonnages carried by individual railways; thus traffic handled by more than one railway (interline) is included more than once.

<sup>2</sup> Footnote <sup>1</sup> applies also to number of revenue passengers.



Total tonnage of freight carried by all common carrier railways (including national loadings and receipts from United States connections) in 1969 and 1970 is shown in Table 5 under the commodity structure adopted in 1970 based on Statistics Canada's Standard Commodity Classification. Although there will be some loss of continuity with previous data, this new commodity breakdown will permit greatly improved comparisons with other series on water transport, imports, exports, etc., which are already based on the Standard Commodity Classification. Also, some items, including potash and piggyback traffic, are shown for the first time in this new series.

### 5.—Commodities Hauled as Revenue Freight by Railways, 1969 and 1970

NOTE.—In this table duplications are eliminated, i.e., freight that is interlined between two or more Canadian railways is counted only once. The statistics do not cover United States operations of Canadian railways except for the Canadian Pacific Railway line through Maine, U.S.A., and certain other short mileages which are deemed to be an integral part of the Canadian railway system. Sections of United States railways operating into Canada are regarded as Canadian railways and are included. Freight carried by the Cartier Railway is included in this table; however, financial data for this railway are not available for inclusion in the financial tables.

Commodity	1969	1970
	tons	tons
<b>Live Animals</b> .....	<b>264,510</b>	<b>214,373</b>
Cattle.....	195,578	168,813
Other live animals.....	68,932	45,560
<b>Food, Feed, Beverages and Tobacco</b> .....	<b>28,408,105</b>	<b>35,116,834</b>
Meat, fresh or frozen.....	372,891	294,618
Other animal products.....	359,536	338,641
Barley.....	2,800,584	5,798,988
Wheat.....	11,919,087	15,663,793
Other grains.....	1,838,948	2,270,145
Milled cereals and cereal products.....	2,237,119	2,234,970
Fruits and fruit preparations.....	824,227	814,680
Vegetables and vegetable preparations.....	2,014,838	1,834,592
Sugar.....	636,626	584,209
Other food and food preparations.....	1,640,273	1,583,396
Animal feed.....	2,661,836	2,708,565
Beverages.....	1,030,921	935,656
Tobacco and tobacco products.....	71,219	54,581
<b>Crude Materials, Inedible</b> .....	<b>103,318,717</b>	<b>119,371,386</b>
Crude animal and vegetable materials.....	1,773,310	2,441,092
Pulpwood.....	10,705,955	10,070,706
Other crude wood materials.....	3,337,433	2,718,279
Textile fibres.....	145,695	136,801
Iron ore.....	38,566,302	49,381,843
Nickel-copper ore.....	3,145,589	4,452,425
Bauxite ore and alumina.....	2,905,473	3,254,714
Other metallic ores.....	6,508,799	7,386,493
Scrap metal, slags and drosses.....	2,412,276	2,363,316
Coal.....	8,411,234	11,410,204
Crude oil and bituminous substances.....	311,236	259,051
Gypsum.....	4,419,530	4,041,427
Limestone.....	3,885,492	3,929,547
Other crude non-metallic minerals.....	16,092,643	16,847,942
Waste materials.....	697,750	577,546
<b>Fabricated Materials, Inedible</b> .....	<b>62,907,600</b>	<b>65,150,135</b>
Lumber.....	6,737,876	7,168,262
Other wood fabricated materials.....	2,058,273	2,055,131
Woodpulp and other pulp.....	5,428,900	5,536,207
Newsprint.....	5,543,342	5,669,251
Other paper and paperboard.....	2,701,502	2,805,071
Chemicals.....	5,112,677	5,224,037
Potash.....	5,302,572	5,714,417
Other fertilizers.....	2,038,824	1,949,809
Petroleum and coal products.....	12,535,564	13,532,325
Metals and primary metal products.....	9,490,409	9,640,906
Cement.....	1,695,751	1,674,985
Other fabricated materials.....	4,261,910	4,179,234
<b>End Products, Inedible</b> .....	<b>8,453,637</b>	<b>7,658,073</b>
Road motor vehicles and parts.....	4,691,195	4,111,196
Other end products.....	3,762,442	3,546,877

## 5. Commodities Hauled as Revenue Freight by Railways, 1969 and 1970—concluded

Commodity	1969	1970
	tons	tons
<b>Special Types of Traffic</b> .....	<b>4,164,164</b>	<b>4,511,821</b>
Piggyback (trailer and container) <sup>1</sup> .....	2,176,000	2,316,936
Freight forwarder.....	1,229,021	1,314,437
Other special traffic.....	759,143	880,448
<b>Non-Carload Shipments<sup>2</sup></b> .....	<b>1,475,105</b>	<b>1,240,833</b>
<b>Grand Totals</b> .....	<b>208,991,838</b>	<b>233,163,455</b>

<sup>1</sup> Excludes traffic moved in railway-operated containers and trailers.<sup>2</sup> Includes express-rated traffic.

The railways remain indispensable for the movement of bulk commodities over long distances and are placing greater and greater emphasis on developing the most effective and economical methods of handling such freight.



Tables 6 to 12 give information on capital liability and capital investment in road and equipment, and on operating revenues, expenses and net income of all common carrier railways operating in Canada, except that of the Cartier Railway which is not available. A Uniform Classification of Accounts has been in operation for the Canadian National and the Canadian Pacific Railways since Jan. 1, 1956 and for other common carrier railways since Jan. 1, 1957. In transportation statistics, a distinction is made between expenditures and expenses. In the following data, the term 'expenses' is used as defined in the Uniform Classification of Accounts and refers to the expenses of furnishing rail transportation service and of operations incident thereto, including maintenance and depreciation of the plant used in such service.

### 6.—Capital Liability of Railways, 1961-70

(Exclusive of Canadian railway capital owned by other Canadian railways)

Year	Stocks	Funded Debt	Total	Year	Stocks	Funded Debt	Total
	\$	\$	\$		\$	\$	\$
1961.....	2,748,537,919	2,234,316,735	4,982,854,654	1966.....	2,896,641,376	2,205,599,116	5,102,240,492
1962.....	2,769,152,492	2,245,189,028	5,014,341,520	1967.....	2,867,308,998	2,356,146,688	5,223,455,686
1963.....	2,791,044,973	2,183,556,139	4,974,601,112	1968.....	2,897,256,002	2,403,877,606	5,301,133,608
1964.....	2,815,148,215	2,181,454,852	4,996,603,067	1969.....	2,963,083,908	2,424,904,752	5,387,988,660
1965.....	2,843,118,935	2,187,613,273	5,030,732,208	1970.....	3,131,605,356	2,561,096,893	5,692,702,249

### 7.—Capital Invested in Railway Road and Equipment Property, 1966-70

NOTE.—Credit entries in this table result when the annual "write-offs" are greater than the annual investment in any category.

Investment	1966	1967	1968	1969	1970
	\$	\$	\$	\$	\$
Road.....	98,279,584	107,331,272	98,531,914	238,542,420	142,583,640
Equipment.....	108,644,249	95,014,300	25,377,470	44,642,509	43,599,130
General.....	1,134,113	993,473	1,139,173	1,610,835	1,615,572
Undistributed.....	Cr. 18,946,523	7,741,646	60,709,923	Cr. 4,333,071	Cr. 24,901,319
CNR non-rail property....	8,001,227	Cr. 6,250,115	6,285,112	4,021,328	3,888,758
CPR " " ....	Cr. 26,879,504	11,574,469	45,073,798	Cr. 8,714,029	Cr. 21,954,692
Other " " ....	Cr. 71,246	2,417,292	9,351,013	359,630	Cr. 6,835,385
<b>Totals.....</b>	<b>189,111,423</b>	<b>211,080,691</b>	<b>185,758,480</b>	<b>280,462,693</b>	<b>162,897,023</b>
Cumulative investment to Dec. 31.....	7,473,732,484	7,684,813,176	7,780,571,655 7,785,979,620 <sup>1</sup>	8,066,442,313 8,092,143,164 <sup>2</sup>	8,255,040,187

<sup>1</sup> Restated to reflect transfer of certain non-rail property of one railway to a subsidiary company.

<sup>2</sup> Restated to include Government of Ontario (GO) transit, not previously reported.

*Capital Structure and Financial Statistics of the Canadian National Railway System.*—In view of the interest in Canada's publicly owned railway, the capital structure of the Canadian National Railway System is given separately in Table 8 and financial details in Table 9. The original financial structure of the CNR and the steps taken through the Capital Revision Acts of 1937 and 1952 to alleviate the burden of interest undertaken by the company on its formation in 1923 are described in the 1955 Year Book, pp. 840-847. Briefly, the Capital Revision Act of 1937 wrote off all loans that had been made to cover deficits and also unpaid interest on loans, and certain loans made for the purpose of additions and betterments were converted to equity capital, relieving the CNR from paying fixed charges on this amount. Under the 1952 Capital Revision Act, 50 p.c. of the company's interest-bearing debt was changed to preferred stock on which, after settling income taxes, a dividend of 4 p.c. is paid out of earnings. Also, for a term of 10 years ended Jan. 1, 1962, the Railway was not obliged to pay interest on \$100,000,000 of its long-term debt. The Government is authorized to buy additional preferred stock annually in amounts related to the company's gross revenues. As a consequence, the proportion of total capitalization represented by equity capital in shareholders' account was raised from 34.5 p.c. at Dec. 31, 1951 to 67.2 p.c. at Jan. 1, 1952, and the proportion of borrowed capital was correspondingly reduced. By the end of 1970, the proportion represented by equity capital of total capitalization was 51.2 p.c.

#### 8.—Capital Structure of the Canadian National Railway System as at Dec. 31, 1961-70

At Dec. 31—	Shareholders' Capital		Funded Debt Held by Public		Government Loans and Appropriations—Active Assets in Public Accounts	Total
	Government of Canada Shareholders' Account	Capital Stock Held by Public	Guaranteed by Federal and Provincial Governments	Other		
	\$	\$	\$	\$	\$	\$
1961.....	1,744,673,266	4,499,273	1,670,653,176	2,423,765	164,593,150	3,586,842,630
1962.....	1,767,976,925	4,499,261	1,630,895,308	2,423,765	209,026,793	3,614,822,052
1963.....	1,792,380,188	4,485,785	1,378,875,000	2,023,764	410,354,762	3,588,119,499
1964.....	1,817,243,906	4,345,185	1,367,811,500	2,023,764	410,354,762	3,601,779,117
1965.....	1,843,209,298	4,345,185	1,366,061,500	2,023,764	410,354,762	3,625,994,509
1966.....	1,871,426,675	4,345,185	1,325,461,500	2,023,764	445,354,762	3,648,611,886
1967.....	1,888,727,368	4,345,185	1,196,694,500	2,023,764	645,994,421	3,737,785,238
1968.....	1,919,098,491	4,345,185	1,130,879,500	2,023,764	786,657,445	3,843,004,385
1969.....	1,950,991,137	4,345,185	1,049,989,500	2,023,764	846,788,377	3,854,137,963
1970.....	1,984,423,666	4,345,185	1,042,019,500	2,023,764	853,389,577	3,886,201,692

The financial details presented in Table 9 are those of the Canadian National Railway System, including both Canadian and United States operations. Revenues and expenses include those of express and commercial communications and highway transport (rail) operations. In conformity with the requirements of the Uniform Classification of Accounts adopted Jan. 1, 1956, tax accruals and rents are charged to operating expenses.



**9.—Total Revenue, Operating Expenses, Net Revenue, Fixed Charges and Deficits of the Canadian National Railway System (Canadian and United States Operations), 1961-70**

Year	Total Operating Revenue	Total Operating Expenses	Income Available for Fixed Charges	Total Fixed Charges	Net Income or Deficit <sup>1</sup>	Cash Deficit or Surplus <sup>2</sup>
	\$	\$	\$	\$	\$	\$
1961.....	710,305,173	722,147,583	5,539,970	73,404,523	Dr. 67,864,553	Dr. 67,307,772
1962.....	738,324,754	738,882,680	23,308,683	74,443,482	" 51,134,799	" 48,919,454
1963.....	762,350,334	752,829,782	36,622,626	76,252,867	" 39,630,241	" 43,013,517
1964.....	822,483,679	811,471,248	37,886,007	74,673,809	" 36,787,802	" 38,725,904
1965.....	870,250,352	855,687,971	43,547,754	73,808,456	" 30,260,702	" 33,414,884
1966.....	953,219,471	923,801,723	62,535,164	76,983,524	" 14,448,360	" 22,155,732
1967.....	995,767,669	986,399,446	40,268,311	79,599,942	" 39,331,631	" 38,306,682
1968.....	1,016,445,288	989,914,723	61,412,780	89,644,744	" 28,231,964	" 29,176,530
1969.....	1,074,880,692	1,044,908,671	73,320,769	96,908,194	" 23,587,425	" 24,646,454
1970.....	1,109,139,346	1,079,595,508	68,386,948	98,734,946	" 30,347,998	" 29,709,064

<sup>1</sup> Includes appropriations for insurance fund.

<sup>2</sup> Contributed by or paid to the Government of Canada.

*Revenues, Expenses and Net Income.*—Total operating revenues and expenses of common carrier railways operating in Canada (except the Cartier) continued to rise, both reaching peak levels in 1970; increases over 1969 amounted to 6.1 p.c. and 5.2 p.c., respectively. As a result, net operating revenues showed a rise of 21.1 p.c. to \$106,200,000.

Of the total operating expenses in 1970 amounting to \$1,573,578,729, "transportation" expenses, including the operation of trains, yards, stations, wharves, etc., accounted for 38.8 p.c.; equipment maintenance for 22.1 p.c.; road maintenance for 18.1 p.c.; rents and taxes for 7.4 p.c.; expenses connected with traffic soliciting, such as advertising and information, ticket and freight offices, etc., for 2.7 p.c.; and general and miscellaneous expenses, including general overhead, accounting, dining and buffet services, grain elevators, etc., for the remainder. These proportions have remained fairly constant in recent years.

**10.—Operating Revenues and Expenses of All Railways, 1961-70**

NOTE.—These data cover all common carrier rail operations in Canada and therefore do not agree with those presented in Table 11 which represent only 24 of the larger lines.

Year	Total Operating Revenues	Total Operating Expenses	Ratio of Operating Expenses to Operating Revenues	Per Mile of Line			Freight-Train Revenue per Freight-Train Mile	Passenger-Train Revenue per Passenger-Train Mile
				Operating Revenues	Operating Expenses	Net Operating Revenues		
	\$	\$	p.c.	\$	\$	\$	\$	\$
1961.....	1,156,480,700	1,114,432,525	96.36	25,736	24,800	936	16.72	3.32
1962.....	1,165,296,722	1,119,662,072	96.08	26,002	24,984	1,018	16.91	3.56
1963.....	1,210,209,799	1,149,530,526	94.99	27,051	25,695	1,356	17.04	3.51
1964.....	1,324,422,492	1,241,258,655	93.72	29,857	27,982	1,875	17.51	3.64
1965.....	1,372,304,959	1,291,840,958	94.14	30,927	29,114	1,813	17.82	3.68
1966.....	1,480,822,951	1,374,872,316	92.85	33,548	31,148	2,400	19.31	3.72
1967.....	1,519,392,966	1,443,956,115	95.04	34,355	32,649	1,706	18.74	4.28
1968.....	1,528,962,071	1,437,735,624	94.03	34,484	32,427	2,058	21.06	3.85
1969.....	1,583,801,797	1,496,126,185	94.46	35,680	33,705	1,975	21.98	4.13
1970.....	1,679,759,268	1,573,578,729	93.68	37,582	35,206	2,376	22.78	4.60

## 11.—Rail Operating Revenues, Expenses and Net Income of the Larger Railways, 1969 and 1970

Item	Canadian National Railways		Canadian Pacific Railways		Totals, 24 Railways	
	1969	1970	1969	1970	1969 <sup>a</sup>	1970
	\$	\$	\$	\$	\$	\$
<b>Operating Revenues...</b>	<b>951,000,537</b>	<b>989,993,352</b>	<b>639,694,772</b>	<b>679,955,209</b>	<b>1,769,315,673</b>	<b>1,880,828,395</b>
Railway—						
Freight.....	663,682,246	696,125,430	504,361,837	544,805,735	1,324,433,857	1,428,577,709
Passenger.....	46,978,398	45,814,418	13,733,573	12,350,186	65,923,944	63,672,015
Sleeping and parlour car.....	7,697,828	7,394,730	2,936,292	2,594,666	10,710,710	10,027,510
Mail.....	11,338,009	10,254,591	2,395,239	2,054,293	14,274,136	12,659,807
Express.....	16,765,315	19,606,761	2,030,706	5,545,674	20,188,424	26,550,881
Switching.....	3,810,413	4,333,836	3,268,859	3,262,847	10,346,549	10,964,385
Payments relating to the National Transportation Act.....	47,020,227	38,994,508	33,063,262	27,418,333	81,254,989	67,386,620
Incidental.....	27,724,761	27,347,273	17,563,595	17,286,404	47,917,520	47,452,906
All other.....	2,194,920	2,306,522	1,638,770	1,527,370	3,928,241	4,110,395
Totals, Railway..	827,212,117	852,178,069	580,992,133	616,845,508	1,578,978,370	1,671,402,228
Express.....	55,730,479	60,585,322	26,989,450	27,899,027	82,979,271	88,691,923
Commercial communications.....	59,161,894	65,605,343	31,713,189	35,210,674	97,686,700	108,240,034
Highway transport (rail).....	8,896,047	11,624,648	—	—	9,671,332	12,494,210
<b>Operating Expenses...</b>	<b>902,987,238</b>	<b>929,246,179</b>	<b>602,092,982</b>	<b>637,681,938</b>	<b>1,669,266,482</b>	<b>1,755,638,810</b>
Railway—						
Road maintenance..	153,813,890	153,278,109	83,990,741	88,413,108	274,396,413	283,033,901
Equipment maintenance.....	179,323,268	184,946,416	119,973,542	129,501,372	327,797,372	347,380,833
Traffic.....	23,146,656	24,474,842	16,644,639	16,653,349	41,817,009	43,159,401
Transportation (railway line).....	311,047,348	320,705,657	221,882,545	232,364,416	583,334,256	609,769,232
Miscellaneous railway operations.....	16,561,697	14,925,252	5,364,079	5,470,612	22,307,395	20,824,857
General.....	74,480,506	77,090,509	53,113,945	55,684,265	143,308,254	147,045,064
Equipment rents....	609,175	975,120	87,768	2,505,854	10,458,105	13,828,471
Joint facility rents....	52,807	Dr. 1,268,847	2,428,934	4,230,580	3,683,787	4,609,763
Railway tax accruals	32,478,044	32,859,382	42,619,059	43,433,330	89,164,428	99,107,012
Totals, Railway..	791,513,391	807,986,440	546,105,252	578,261,886	1,496,267,019	1,568,758,534
Express.....	54,338,311	59,330,434	26,799,450	27,521,427	81,397,103	87,162,404
Commercial communications.....	47,775,787	50,975,026	29,188,280	31,898,625	81,607,142	87,999,410
Highway transport (rail).....	9,359,749	10,954,279	—	—	9,995,218	11,718,462
<b>Net Operating Income.</b>	<b>48,013,299</b>	<b>60,747,203</b>	<b>37,601,790</b>	<b>42,273,271</b>	<b>100,049,191</b>	<b>125,189,585</b>
Railway.....	35,698,726	44,191,629	34,886,881	38,583,622	82,711,351	102,643,694
Express.....	1,392,168	1,254,888	190,000	377,600	1,582,168	1,529,519
Commercial communications.....	11,386,107	14,630,317	2,524,909	3,312,049	16,079,558	20,240,624
Highway transport (rail).....	Dr. 463,702	670,369	—	—	Dr. 323,886	775,748

**Railway Accidents.**—Accidents shown in Table 12 (for all common carrier railways operating in Canada) include all those in which railway trains were involved and accidents on railway property; all passengers injured are included but, for employees, only those who were kept from work for at least three days during the 10 days following the accident are recorded. The classification of accidents used in reporting Statistics Canada highway

statistics treats collisions between motor vehicles and trains as motor vehicle accidents. Therefore, care should be exercised when compiling total accidental deaths of all kinds or when comparing data on accidents of different kinds, such as train and motor vehicle, since train-car collisions would be included in both.

### 12.—Persons Killed or Injured on Railways, by Specified Cause, 1968-70

Item	1968		1969		1970	
	Killed	Injured	Killed	Injured	Killed	Injured
	No.	No.	No.	No.	No.	No.
<b>ACCIDENTS RESULTING FROM MOVEMENT OF TRAINS, LOCOMOTIVES OR CARS</b>						
<b>Class of Person—</b>						
Passengers.....	6	235	4	165	1	157
Employees.....	25	1,168	21	1,182	17	1,223
Trespassers.....	50	47	48	58	52	57
Non-trespassers.....	134	454	121	432	109	397
Postal clerks, expressmen, etc.....	—	6	1	15	1	1
<b>Totals.....</b>	<b>215</b>	<b>1,910</b>	<b>195</b>	<b>1,852</b>	<b>180</b>	<b>1,835</b>
<b>Description of Accidents (employees and passengers only)—</b>						
Coupling and uncoupling.....	1	81	—	82	—	98
Collisions.....	5	102	5	78	1	54
Derailments.....	9	68	3	74	3	100
Falling from trains or cars.....	—	30	1	37	1	36
Getting on or off trains.....	1	304	2	317	2	331
Struck by trains, etc.....	8	16	3	19	4	28
Other causes.....	7	802	11	740	7	733
<b>Totals.....</b>	<b>31</b>	<b>1,403</b>	<b>25</b>	<b>1,347</b>	<b>18</b>	<b>1,380</b>
<b>ALL OTHER ACCIDENTS</b>						
<b>Class of Person—</b>						
Employees.....	9	2,343	12	2,571	4	2,730
Passengers.....	—	122	—	86	—	94
Others.....	1	44	7	57	4	46
<b>Totals.....</b>	<b>10</b>	<b>2,509</b>	<b>19</b>	<b>2,714</b>	<b>8</b>	<b>2,870</b>

## PART II.—ROAD TRANSPORT\*

### Section 1.—Motor Vehicle and Traffic Regulations

The registration of motor vehicles and the regulation of motor vehicle traffic lies within the legislative jurisdiction of the provincial and territorial governments. However, the Federal Government has recently passed legislation establishing motor vehicle safety standards. This legislation is outlined below, followed by summaries of motor vehicle and traffic regulations common to all provinces and territories. The source of information on detailed regulations for each province and territory is given at p. 889.

\* Except as otherwise indicated, most of the material in this Part has been revised in the Transportation and Public Utilities Division, Statistics Canada.

### Federal Safety Regulations

The Motor Vehicle Safety Act (RSC 1970, c. 26, 1st Supp.) which was passed by the House of Commons on Mar. 11, 1970, received Royal Assent on Mar. 25, 1970, and was proclaimed Jan. 1, 1971. The general objective of the Act is to establish mandatory safety standards for new motor vehicles for the purpose of protecting persons against injuries or death and the impairment of health by exhaust emission and possibly noise. The legislation is directed to all new motor vehicles and components thereof manufactured in or imported into Canada. The safety of vehicles in use continues to be a provincial responsibility to be discharged under existing provincial legislation.

The safety regulations currently include 30 standards relating to the design and performance of passenger cars, trucks, buses, motorcycles, competition motorcycles, minibikes and trailers, five standards limiting motor vehicle exhaust and evaporative emissions and 10 standards applying to snowmobiles. These regulations will be subjected to continual review and additions or revisions will be incorporated to keep pace with engineering or technical advances. The regulations require all Canadian motor vehicle manufacturers or distributors to apply the national safety mark to every classified vehicle produced after Jan. 1, 1971, and this mark must be accompanied by a label certifying compliance with all applicable federal motor vehicle safety standards. Vehicles imported for commercial or individual use must comply with the Act and Regulations.

### Provincial and Territorial Motor Vehicle and Traffic Regulations\*

**Operators' Licences.**—The operator of a motor vehicle must be over a specified age, usually 16 years (17 in Newfoundland and generally 18 in Alberta but 16 for certain classes of motor vehicle), and must carry a licence, obtainable in most provinces only after prescribed qualification tests. Such licence is renewable annually in Saskatchewan, in the Yukon Territory and in the Northwest Territories and annually at the end of the licensee's birth month in Manitoba; in Alberta it is renewable every five years but annually where a medical report is required; in British Columbia it is renewable every five years expiring on the licensee's birth date and classified according to the operations by the licensee; in Quebec, operator and chauffeur permits expire on the holder's birthday and the odd-numbered year following the issue of renewal thereof; in Prince Edward Island and New Brunswick it is renewable every two years and expires at the end of the licensee's birth month; in Newfoundland and Ontario a licence is issued on a three-year basis and expires on the licensee's birth date; and in Nova Scotia a licence is issued on a three-year basis and expires at the end of the licensee's birth month. Special licences are required for chauffeurs in all provinces except Newfoundland and British Columbia. In most provinces, a motorcycle operator is required to pass a special examination and have his driver's licence endorsed authorizing him to operate such vehicle or, if he has no driver's licence, he may be issued a licence to operate only this class of vehicle. In Alberta a person under 16 but not under 14 years of age is permitted to operate a motorcycle with a piston displacement of not more than 100 cc.

**Motor Vehicle Regulations.**—All motor vehicles and trailers must be registered annually, with the payment of specified fees, and must carry two registration plates, one on the front and one on the rear of the vehicle (one only for the rear of trailers; in New Brunswick two licence plates are issued for all vehicles other than commercial tractors, trailers and motorcycles; in Prince Edward Island, Quebec, Ontario, Manitoba, Alberta and British Columbia one plate is issued for motorcycles, to be mounted on the rear; in Saskatchewan, motorcycles and snowmobiles carry one plate on the rear and truck tractors carry one plate on the front; in Ontario, snowmobiles carry one plate on the front).

In most provinces, in event of sale the registration plates stay with the vehicle but in Quebec, Manitoba, Saskatchewan and Alberta the plates are retained by the owner. In

\* Revised according to information received from the respective provincial and territorial authorities concerned.



Nova Scotia, vehicles pass from owner to owner by due process of law and title must be secured before issue of plates and permit. A change of ownership of the vehicle must be recorded with the registration authority. However, exemption from registration is granted for a specified period (usually at least 90 days, except in Quebec where the maximum is three months for non-residents; in Nova Scotia, a non-resident full-time student residing temporarily in the province may receive, without fee, a driver's licence, plates and permit in exchange for valid out-of-town licence, plates and permit, the latter to be returned to the home province, state or territory of the student concerned; in Ontario where it is six months for non-resident vehicles from other provinces and three months for non-resident vehicles registered outside Canada; in Manitoba where residents may use registration plates from other jurisdictions for 90 days, visitors are exempt from registration provided the vehicle is not used for business purposes, and an out-of-province student is exempt from registration provided he obtains a student sticker to be affixed to his windshield and provided the vehicle is properly registered in his home jurisdiction; in Saskatchewan where an out-of-province student may on application extend the period of exemption from registration requirements for the whole school year, provided the vehicle is properly registered in his home jurisdiction; in Alberta where non-residents may operate vehicles currently registered in their home province or state of the United States for a period not exceeding six months and where an out-of-province student may extend the period of registration requirements for the whole school year provided the vehicle is properly registered and insured in the student's name in his home jurisdiction; and in British Columbia where it is one month or six months for tourists and where an out-of-province student may extend the period of registration requirements for the whole school year, provided the vehicle is properly registered in his home jurisdiction). Regulations require a safe standard of efficiency in the mechanism of the vehicle and of its brakes and stipulate that equipment include non-glare headlights, a proper rear light, a muffler, a windshield wiper, a rear-vision mirror, and a warning device. In Ontario, under a 1968 amendment to the Highway Traffic Act, a certificate of mechanical fitness is required for a vehicle sold on the second-hand market before a permit is issued for its operation. Prior to entering into a contract to sell a used motor vehicle every dealer shall give to the purchaser a certificate of mechanical fitness certifying that at the time of sale the motor vehicle complies with the equipment requirements specified in Part 3 of the Highway Traffic Act.

**Traffic Regulations.**—In all provinces and territories, vehicles keep to the right-hand side of the road. Everywhere motorists are required to observe traffic signs, lights, etc., placed at strategic points on highways and roads. The speed limit in Prince Edward Island, unless otherwise posted, is 60 miles an hour in daytime and 55 at night; in Manitoba, the basic speed limit is 60 miles an hour in daytime and 50 at night unless otherwise posted—speed limits may be raised to 70 miles an hour or modified in semi-built-up areas; in Alberta it is 60 in daytime and 50 at night, with the exception of a few selected sections of four-lane highway where higher speeds may be posted; in Nova Scotia the limit is a "reasonable and prudent" speed, with a maximum of 60 miles an hour except where 65 miles an hour is authorized; in New Brunswick, maximum speeds vary from 50 to 60 miles an hour depending on type of highway; and in Ontario and Quebec maximum speeds vary from 50 to 70 miles an hour, depending on type of highway. In the other provinces the maximum speed permitted is normally 50 miles an hour; in Saskatchewan and British Columbia where higher speeds are in effect they are posted. In Yukon Territory the speed limit for all vehicles is 60 miles an hour, unless otherwise posted. In the Northwest Territories, the highway limit is 60 miles an hour for all vehicles, day or night, except as otherwise posted, and in municipalities it is 30 miles an hour except as posted. Slower speeds are required in cities, towns and villages (in Nova Scotia and British Columbia when passing schools and public playgrounds), at road intersections, railway crossings or at other places or times where the view of the highway for a safe distance ahead is in any way obscured. In most provinces, truck speed limits are at least five miles an hour below automobile speed limits,

although in Manitoba, Saskatchewan and British Columbia they are the same as for passenger vehicles. In most provinces, accidents resulting in personal injury or property damage in excess of \$200 (\$100 in Quebec) must be reported to a police officer (in Nova Scotia to the Registrar of Motor Vehicles or to a police officer; in Quebec to a police officer or to the Motor Vehicle Bureau) and a driver involved must not leave the scene of an accident until he has rendered all possible aid and disclosed his name to the injured party.

**Driver Licensing Controls.**—All provinces and territories impose penalties for infractions of driving regulations, ranging from fines for minor infractions to suspension of the operator's driving permit, impounding of licence or imprisonment for more serious infractions. In most provinces penalties have been linked to a driver-improvement program, the aim of which is to correct faulty driving habits, not to take drivers off the road. The most common driver-improvement program includes the demerit-point-system.

**Safety Responsibility Legislation.**—Each province has enacted safety responsibility legislation. In general, these laws provide for the automatic suspension of the driver's licence and motor vehicle registration of a person convicted of a serious offence (impaired driving, driving under suspension, dangerous driving, etc.). It also provides for the automatic suspension of a person's driving licence and registration of the owner whose uninsured vehicle is involved directly or indirectly in an accident resulting in damage in excess of \$200 or injury or death to any person (in Nova Scotia, Ontario, Manitoba and Alberta the amount is \$100). In Saskatchewan, Alberta and Quebec, if a Judgment is rendered for damages against the driver or owner, the driver's licence and registration remain suspended until the Judgment is satisfied and proof of financial responsibility for the future is filed. In Saskatchewan, the Yukon Territory and the Northwest Territories uninsured motor vehicles may be impounded following an accident of any consequence, i.e., an accident resulting in personal injury or death, or property damage in excess of \$100 (\$200 in Saskatchewan and the Northwest Territories). In the Province of Quebec, furthermore, pursuant to the Code of Civil Procedure, the plaintiff may seize before Judgment the motor vehicle which has caused him damage whatever the amount of property damage whether covered for third-party insurance or not. In British Columbia, if a Judgment is rendered against a driver and not satisfied, the driver's licence may be suspended until reinstated at the discretion of the Superintendent of Motor Vehicles. In Ontario, Manitoba, Alberta and British Columbia the non-resident motorist is not required to carry or produce any form of proof of insurance. In Ontario, the only persons required to file a Certificate of Insurance are those indebted to the Motor Vehicles Accident Claims Fund. In Manitoba, proof of insurance must be supplied at the time of registration but if such insurance expires or is cancelled registration of the vehicle is not suspended unless the vehicle is involved in an accident. In British Columbia, a compulsory insurance plan is in effect for residents, and drivers may at any time be required to show proof of financial responsibility upon demand of a peace officer.

In the Yukon Territory an inadequately insured vehicle may be impounded if it is involved in an accident, regardless of the property damage, and in the Northwest Territories proof of insurance must be supplied before vehicle licence is issued, and when the insurance expires or is cancelled vehicle licence plates must be returned to the Registrar of Motor Vehicles. By order, the Yukon Commissioner and the Northwest Territories Commissioner may exempt certain areas from the insurance requirement. In the Northwest Territories, public liability and property damage insurance is compulsory for all vehicles operating on the highways of the Territories regardless of where the vehicle is registered.

**Unsatisfied Judgment Fund.**—Legislation has been enacted in all provinces except Saskatchewan and in the Yukon Territory, usually in the form of an amendment to the motor vehicle laws of the province or territory, providing for the establishment of a fund, frequently called an Unsatisfied Judgment Fund (in New Brunswick, the Unsatisfied Judgment Fee; in Ontario, the Motor Vehicle Accident Claims Fund; in Alberta, the Motor

Vehicle Accident Claims Fund; and in British Columbia, the Traffic Victims' Indemnity Fund), out of which are paid Judgments awarded for damages arising out of motor vehicle accidents in the province which cannot be collected in the ordinary process of law. In Newfoundland, Prince Edward Island, Nova Scotia, Quebec and British Columbia the fund is maintained by insurance companies. In all the other provinces, except Saskatchewan where insurance is compulsory, the funds are obtained by the annual collection of a fee from the registered owner of every motor vehicle or from every person to whom a driver's licence is issued. The fee usually does not exceed \$1 per annum; in New Brunswick the fee is \$3 a year; in Ontario a fee of \$25 is paid by the uninsured motorist (in the absence of the fee being paid the uninsured, if apprehended, is liable to a fine) and, in addition, the fund is subsidized by a \$1 annual charge from each licensed driver; in Alberta \$20 is collected from each uninsured owner of a motor vehicle at the time of registration or transfer.

A feature of this legislation, which is contained in some provincial statutes, is the provision for the payment of Judgments in hit-and-run accidents. When these occur, if neither the owner nor the driver can be identified, action may be taken against the Registrar of Motor Vehicles (the Minister of Finance in Newfoundland and the Administrator of the Motor Vehicle Accident Claims Fund in Alberta); any Judgment secured against the responsible authority is paid out of the Fund. All of these laws contain a provision limiting the amount that can be paid out of the Fund on one Judgment. In Newfoundland and Nova Scotia, the limits are \$10,000 for one person, \$20,000 for two or more persons injured in one accident and \$5,000 for property damage. In Nova Scotia and New Brunswick, the limit is \$35,000 in respect of any one accident. In Prince Edward Island and Quebec, the limit is \$35,000 for all damages in the same accident, subject to a deduction of \$200 from all damage to the property of others; damages resulting in bodily injury or death are, up to \$30,000, payable by priority over damages to property and the latter are, up to \$5,000, payable by priority over the former out of the amount of any insurance or other guarantee of indemnity. In British Columbia, the limit is based on the single amount of \$50,000 for any one accident with the provision that not more than \$5,000 may be paid on a property damage claim until injury claims up to \$45,000 have been satisfied; the \$50,000 limit exists for hit-and-run accidents but does not apply to payments for property damage. In Alberta, the limit is \$35,000 for death or personal injury to one or more persons and \$5,000 for damage to property, subject to a limit of \$35,000 in any one accident; where in one accident claims result from bodily injury to or death of one or more persons and loss of or damage to property, claims arising out of bodily injury or death have priority over claims arising out of loss of or damage to property to the amount of \$30,000, and claims arising out of loss of or damage to property have priority over claims arising out of bodily injury or death to the amount of \$5,000. In Manitoba, the limit based on one accident is \$50,000, with Judgments arising out of bodily injury or death having priority to the extent of \$30,000 over claims resulting from loss of or damage to property; and Judgments arising out of loss of or damage to property having priority to the extent of \$5,000 over Judgments resulting from bodily injury or death; the maximum amount payable for a single Judgment resulting from loss of or damage to property is \$3,000, subject to a deduction of \$200.

In Ontario, the Motor Vehicle Accident Claims Act passed in 1962 replaced the Unsatisfied Judgment Fund which had been in effect since 1947. The new Act was streamlined to adjust promptly and efficiently all those claims incurred by the uninsured motorist. Claims could be adjusted much the same as by the insurance companies. The limits under an amendment to the Act of September 1969 are \$50,000, inclusive of \$5,000 for any property damage claim. Many small claims are handled by the Ontario Department of Transport, subject to a \$50 franchise clause in respect to property damage, but the procedure is such that claims can be settled under Sect. 5 of the Act without resort to litigation. Sect. 6 covers Judgment cases and Sects. 11 and 14 cover the hit-and-run cases in which a Judgment is necessary and property damage is not payable. A 1968 amendment to the Act gave the Minister of Transport power to act where the defendant is an infant.



Sources of information on provincial motor vehicle and traffic regulations:—

### **Newfoundland**

*Administration.*—The Minister of Highways, St. John's.

*Legislation.*—The Highway Traffic Act, 1962 (amended 1964).

### **Prince Edward Island**

*Administration.*—The Provincial Secretary, Charlottetown.

*Legislation.*—The Highway Traffic Act (SPEI 1964, c. 14).

### **Nova Scotia**

*Administration.*—Registry of Motor Vehicles, Department of Highways, Halifax.

*Legislation.*—The Motor Vehicle Act (SNS 1967, c. 191, as amended) and the Motor Carrier Act (SNS 1967, c. 190, as amended).

### **New Brunswick**

*Administration.*—Motor Vehicle Branch, Department of Provincial Secretary, Fredericton.

*Legislation.*—The Motor Vehicle Act (RSNB 1955, as amended).

### **Quebec**

*Administration.*—Motor Vehicle Bureau, Department of Transport, Parliament Bldgs., Quebec

*Legislation.*—The Highway Code (RSQ 1964, c. 231, as amended) and the Highway Victims Indemnity Act (RSQ 1964, c. 232).

### **Ontario**

*Administration.*—Ontario Department of Transportation and Communications, Toronto.

*Legislation.*—The Highway Traffic Act (RSO 1960, c. 172, as amended), the Public Vehicles Act (RSO 1960, c. 337, as amended), the Public Commercial Vehicles Act (RSO 1960, c. 319, as amended), and the Motor Vehicle Accident Claims Act (SO 1961-62, c. 84, as amended).

### **Manitoba**

*Administration.*—Minister, Department of Transportation, Winnipeg.

*Legislation.*—The Highway Traffic Act (SM 1970, c. H60) and the Unsatisfied Judgment Fund Act (SM 1970, c. U70).

### **Saskatchewan**

*Administration.*—Highway Traffic Board, Saskatchewan Power Bldg., Regina.

*Legislation.*—The Vehicles Act, 1965.

### **Alberta**

*Administration and Legislation.*—The Motor Vehicle Accident Claims Act (SA 1964, c. 56) and the Highway Traffic Act (SA 1967, c. 30) are administered by the Motor Vehicle Branch, Department of Highways and Transport, Edmonton. The Public Service Vehicles Act (RSA 1955, c. 265) and the Rules and Regulations are administered by virtue of authority vested in the Highway Traffic Board, Department of Highways and Transport, Edmonton.

### **British Columbia**

*Administration and Legislation.*—Enforcement of the Motor Vehicle Act, the Commercial Transport Act and the Motor Carrier Act is vested in the Royal Canadian Mounted Police and the various municipal police forces. The Motor Carrier Act is administered by the Public Utilities Commission, the Motor Vehicle Act by the Superintendent of Motor Vehicles and the Commercial Transport Act by the Minister of Commercial Transport, Victoria, B.C.

### **Yukon Territory**

*Administration.*—Commissioner of the Yukon Territory, Whitehorse, Y.T. Information regarding regulations may also be obtained from the Registrar of Motor Vehicles, Government of the Yukon Territory, Whitehorse, Y.T.

*Legislation.*—The Motor Vehicles Ordinance (Revised Ordinances 1958, c. 77, as amended).

### **Northwest Territories**

*Administration.*—Registrar of Vehicles, Yellowknife, N.W.T.

*Legislation.*—The Vehicles Ordinance (1967, c. 9, second session).



## Section 2.—Highways, Roads and Streets\*

The populated sections of Canada are well supplied with highways and roads. Access to outlying settlements is provided to some extent by roads built by logging, pulp and paper, and mining companies, although these are not generally available for public travel. At the same time, great areas of the provinces and territories are still very sparsely settled and are virtually without roads of any kind.

Table 1 shows that, at the end of 1969, there were 318,255 miles of highways and rural roads under federal or provincial jurisdiction and 199,932 miles of roads and streets under municipal jurisdiction. (Roads in municipalities of less than 1,000 population are included under "municipal" since 1969, whereas previously they were included as "rural roads".)

Table 2 gives expenditures on all highways, roads and streets in the years ended Mar. 31, 1969 and 1970. An estimate of the total as at Mar. 31, 1971 was \$1,957,000,000; construction expenditures increased 2.3 p.c. and maintenance and administration costs rose 13.0 p.c.

\* More detail may be obtained from Statistics Canada annual report *Road and Street Mileage and Expenditure* (Catalogue No. 53-201).



Laporte Bridge, which spans the St. Lawrence River immediately west of Quebec City, is a link in the great network of highways and autoroutes that traverse that province.

## 1.—Highway, Road and Street Mileage classified by Type and by Province, 1969

Province or Territory and Jurisdiction	Surfaced			Earth	Total
	Rigid Pavement	Flexible Pavement	Gravel		
	miles	miles	miles	miles	miles
<b>Federal and Provincial Jurisdiction</b> .....	<b>2,493</b>	<b>71,159</b>	<b>198,173</b>	<b>46,430</b>	<b>318,255</b>
Newfoundland.....	—	1,284	3,797	850	5,931
Prince Edward Island.....	663	844	1,109	624	3,240
Nova Scotia.....	10	4,769	10,717	54	15,550
New Brunswick.....	—	5,206	8,238	14	13,458
Quebec.....	238	15,985	24,574	13,539	54,336
Ontario.....	1,277	19,375	55,688	3,637	79,977
Manitoba.....	288	3,963	7,370	49	11,670
Saskatchewan.....	3	6,990	5,168	2,922	15,083
Alberta.....	6	5,790	64,107	17,871	87,774
British Columbia.....	8	6,947	14,110	6,870	27,935
Yukon and Northwest Territories.....	—	6	3,295	—	3,301
<b>Municipal Jurisdiction</b> .....	<b>6,736</b>	<b>28,846</b>	<b>88,691</b>	<b>75,659</b>	<b>199,932</b>
Newfoundland.....	6	396	630	48	1,080
Prince Edward Island.....	7	85	8	18	113
Nova Scotia.....	63	900	267	2	1,232
New Brunswick.....	31	697	130	24	882
Quebec.....	1,936	6,985	1,727	235	10,883
Ontario.....	2,815	9,416	5,044	416	17,691
Manitoba.....	1,268	536	19,904	12,968	34,676
Saskatchewan.....	163	1,510	55,100	60,928	117,701
Alberta.....	297	2,415	2,905	781	6,398
British Columbia.....	150	5,888	2,907	223	9,168
Yukon and Northwest Territories.....	—	18	69	16	103

## 2.—Construction, Maintenance and Administration Expenditure on Highways, Rural Roads, Urban Streets, Bridges and Ferries, by Province, Years Ended Mar. 31, 1969 and 1970

Item and Province or Territory	Construction		Maintenance and Administration		Total Expenditure	
	1969	1970	1969	1970	1969	1970
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Provincial and Federal Expenditure</b> .....	<b>735,230</b>	<b>791,662</b>	<b>352,417<sup>1</sup></b>	<b>370,282<sup>1</sup></b>	<b>1,087,647<sup>1</sup></b>	<b>1,161,945<sup>1</sup></b>
Newfoundland.....	36,929	35,426	14,589	14,216	51,517	49,641
Prince Edward Island.....	9,130	8,659	3,896	4,132	13,027	12,791
Nova Scotia.....	50,279	42,284	19,977	19,264	70,256	61,548
New Brunswick.....	32,360	25,781	20,232	21,487	52,592	47,268
Quebec.....	190,638	202,190	92,689	93,822	283,327	296,012
Ontario.....	197,147	213,852	92,654	101,073	289,802	314,925
Manitoba.....	28,868	29,208	15,736	16,765	44,604	45,974
Saskatchewan.....	43,183	43,026	14,762	14,089	57,945	57,115
Alberta.....	50,597	58,830	16,951	17,755	67,548	76,585
British Columbia.....	81,436	113,750	49,100	55,922	130,536	169,672
Yukon and Northwest Territories.....	14,663	18,656	11,540	11,508	26,203	30,164
<b>Municipal Expenditure</b> .....	<b>383,128</b>	<b>355,691</b>	<b>263,946</b>	<b>439,422</b>	<b>650,074</b>	<b>795,113</b>
Newfoundland.....	742	1,449	1,840	3,047	2,582	4,496
Prince Edward Island.....	418	484	590	652	1,008	1,136
Nova Scotia.....	2,752	3,836	3,400	4,125	6,152	7,961
New Brunswick.....	2,308	4,201	3,546	4,850	5,854	9,051
Quebec.....	48,642	48,873	60,741	54,515	109,383	103,388
Ontario.....	215,090	184,751	136,235	266,846	351,325	451,597
Manitoba.....	16,518	16,756	7,433	15,818	23,951	32,574
Saskatchewan.....	34,340	16,231	13,764	32,682	48,104	48,913
Alberta.....	44,985	49,849	24,309	36,996	69,294	86,845
British Columbia.....	20,189	28,771	11,958	19,508	32,147	48,279
Yukon and Northwest Territories.....	144	490	130	383	274	873

<sup>1</sup> Includes federal administrative costs re Trans-Canada Highway, not allocated by province, amounting to \$290,000 in 1968-69 and \$250,000 in 1969-70.

## Section 3.—Motor Vehicles

**Motor Vehicle Registrations.**—Registrations continue to increase year by year, a record of 8,495,581 being reached in 1970. Of that total, 6,602,196 were passenger cars. Registrations by province are given in Table 3 and types of vehicles registered by province in Table 4.

## 3.—Motor Vehicles Registered, by Province, 1961-70

NOTE.—Registrations given here include passenger cars, trucks, buses, motorcycles, service cars, etc., but not trailers or dealer licences.

Year	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Total <sup>1</sup>
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
1961.....	65,270	32,166	206,691	145,951	1,183,978	2,126,270	299,998	349,817	509,298	588,280	5,517,023
1962.....	74,119	33,888	206,370	151,360	1,281,180	2,177,148	312,272	372,219	535,459	620,426	5,774,810
1963.....	79,422	35,314	212,034	156,768	1,381,801	2,268,320	324,806	382,190	560,490	662,453	6,074,655
1964.....	87,990	35,062	222,827	165,311	1,441,201	2,381,219	339,509	396,742	583,713	716,644	6,382,033
1965.....	92,885	33,849	233,653	174,428	1,480,743	2,516,680	342,335	418,606	606,754	786,310	6,698,778
1966.....	95,704	35,299	234,532	183,676	1,556,342	2,643,474	356,693	438,558	638,852	838,992	7,035,261
1967.....	100,322	36,844	246,384	188,617	1,769,154	2,736,366	371,077	467,495	676,270	887,736	7,495,203
1968.....	108,220	37,152	276,609	198,406	1,888,934	2,869,588	380,488	464,017	703,151	941,935	7,887,077
1969.....	112,027	38,812	314,547	199,980	1,998,001	2,953,789	394,975	472,363	735,729	1,014,301	8,254,160
1970.....	118,641	40,233	269,815	201,274	2,115,126	3,047,599	403,187	464,405	768,759	1,046,697	8,495,581

<sup>1</sup> Includes registrations in the Yukon and Northwest Territories; in 1970 they numbered 11,371 and 8,474, respectively.

## 4.—Types of Motor Vehicles Registered, by Province, 1969 and 1970

Year and Province or Territory	Passenger Cars <sup>1</sup>	Commercial Cars, Trucks, etc. <sup>2</sup>	Buses	Motorcycles	Total
	No.	No.	No.	No.	No.
<b>1969</b>					
Newfoundland.....	85,667	24,398	806	1,156	112,027
Prince Edward Island.....	29,229	8,700	231	652	38,812
Nova Scotia.....	232,940	75,685	1,327	4,595	314,547
New Brunswick.....	156,102	39,279	1,169	3,430	199,980
Quebec.....	1,534,682	406,832	14,967	41,520	1,998,001
Ontario.....	2,501,718	400,156	12,040	39,875	2,953,789
Manitoba.....	299,695	89,883	245	5,152	394,975
Saskatchewan.....	284,356	180,036	4,111	3,860	472,363
Alberta.....	508,835	205,739	4,785	16,370	735,729
British Columbia.....	790,493	202,903	<sup>3</sup>	20,905	1,014,301
Yukon and Northwest Territories.....	9,566	9,149	74	847	19,636
<b>Canada, 1969.....</b>	<b>6,433,283</b>	<b>1,642,760</b>	<b>39,755</b>	<b>138,362</b>	<b>8,254,160</b>
<b>1970</b>					
Newfoundland.....	89,568	26,872	801	1,400	118,641
Prince Edward Island.....	30,376	8,907	257	693	40,233
Nova Scotia.....	201,974	62,715	870	4,256	269,815
New Brunswick.....	159,307	37,280	1,256	3,431	201,274
Quebec.....	1,602,129	447,837	15,402	49,758	2,115,126
Ontario.....	2,576,041	413,241	13,066	45,251	3,047,599
Manitoba.....	306,559	90,629	259	5,740	403,187
Saskatchewan.....	284,251	171,683	4,214	4,257	464,405
Alberta.....	530,420	214,120	4,826 <sup>3</sup>	19,393	768,759
British Columbia.....	811,590	212,607	<sup>3</sup>	22,500	1,046,697
Yukon and Northwest Territories.....	9,981	8,974	167	723	19,845
<b>Canada, 1970.....</b>	<b>6,602,196</b>	<b>1,694,865</b>	<b>41,118</b>	<b>157,402</b>	<b>8,495,581</b>

<sup>1</sup> Includes taxis.

<sup>2</sup> Includes service cars, road tractors, farm tractors, etc.

<sup>3</sup> Included with trucks.

**Apparent Supply of Automobiles.**—The apparent supply of automobiles in Canada in any year is computed by deducting the number exported from the sum of the production and imports. Statistics regarding retail sales and the financing of motor vehicle sales are given in Chapter XX on Domestic Trade and Prices.

### 5.—Apparent Supply of New Automobiles, 1961-70

Year	Cars Made for Sale in Canada		Car Imports		Re-exports of Imported Cars		Apparent Supply	
	Pas-senger	Com-mercial	Pas-senger	Com-mercial	Pas-senger	Com-mercial	Pas-senger	Com-mercial
	No.	No.	No.	No.	No.	No.	No.	No.
1961.....	312,599	60,332	106,865	9,487	700	35	418,764	69,784
1962.....	412,120	78,094	94,655	4,413	194	67	506,581	82,440
1963.....	513,785	93,912	59,634	3,193	391	38	573,028	97,067
1964.....	520,743	104,446	92,490	3,160	1,277	17	611,956	107,589
1965.....	636,738	119,917	136,446	6,675	1,192	41	771,992	126,551
1966.....	506,111	115,192	188,667	16,172	379	45	694,399	131,319
1967.....	365,521	99,818	313,692	32,100	745	59	678,468	131,859
1968.....	379,344	101,912	436,964	48,031	1,054	60	815,254	149,883
1969.....	328,658	88,108	457,670	65,304	1,058	64	785,270	153,348
1970.....	224,772	62,999	404,863	63,798	1,377	153	628,258	126,644

**Provincial Government Revenue from Motor Vehicles.**—The taxation of motive fuels, motor vehicles, garages, drivers, chauffeurs, etc., is an important source of provincial government revenue. In every province, licences or permits duly issued by the provincial authorities are required for motor vehicles of all kinds, trailers, operators or drivers, paid chauffeurs, dealers, garages and gasoline and service stations.

The more important sources from which provincial revenue from motor vehicles is derived are shown in Table 6. Motive fuel tax rates are given in the Public Finance Chapter, Section 2, Subsection 2 on Provincial Taxes; Federal Government revenue from excise and sales taxes is given in the same Chapter, Section 3, Subsection 3 on Revenue from Taxation.

### 6.—Provincial Revenue from the Registration and Operation of Motor Vehicles, by Province, Years Ended Mar. 31, 1969 and 1970

Year and Province or Territory	Passenger Automobile Licences	Truck, Bus, Trailer and Other Vehicle Licences	Motorcycle Licences	Chauffeur, Driver and Dealer Licences <sup>1</sup>	Public Service Vehicle Tax	Motive Fuel Taxes	Total <sup>2</sup>
	\$	\$	\$	\$	\$	\$	\$
<b>1968-69</b>							
Newfoundland.....	1,685,561	2,291,668	9,758	538,082	36,366	18,067,682	23,478,692
Prince Edward Island	599,929	414,598	2,580	164,116	33,095	4,974,934	6,297,950
Nova Scotia.....	4,237,916	4,027,040	2	627,232	176,056	31,300,999	41,257,850
New Brunswick.....	3,676,762	3,117,796	21,317	473,328	—	26,251,328	34,291,341
Quebec.....	43,472,626	33,840,641	406,230	4,110,185	2,336,818	262,761,398	350,417,311
Ontario.....	65,644,782	52,595,259	374,034	4,294,824	4,764,247	363,579,715	509,030,531
Manitoba.....	5,953,481	5,036,575	27,122	217,627	1,578,267	41,448,756	55,215,483
Saskatchewan.....	5,694,273	6,456,261	4	1,126,746	—	46,141,878	60,742,076
Alberta.....	9,762,806	10,972,051	5	692,234	246,718	68,512,086	92,393,490
British Columbia.....	14,755,477	13,253,336	87,089	1,148,379	445,342	69,413,791	101,457,508
Yukon and N.W.T.....	129,278	151,604	1,955	43,435	132,406	2,835,114	3,402,687
<b>Canada, 1968-69</b>	<b>155,612,891</b>	<b>132,156,829</b>	<b>930,085<sup>3</sup></b>	<b>13,436,278</b>	<b>9,749,315</b>	<b>935,287,591</b>	<b>1,277,984,919</b>

For footnotes, see end of table, p. 894.



**6.—Provincial Revenue from the Registration and Operation of Motor Vehicles,  
by Province, Years Ended Mar. 31, 1969 and 1970—concluded**

Year and Province or Territory	Passenger Automobile Licences	Truck, Bus, Trailer and Other Vehicle Licences	Motorcycle Licences	Chauffeur, Driver and Dealer Licences <sup>1</sup>	Public Service Vehicle Tax	Motive Fuel Taxes	Total <sup>2</sup>
	\$	\$	\$	\$	\$	\$	\$
<b>1969-70</b>							
Newfoundland.....	1,719,272	2,469,008	11,058	149,518	110,231	19,672,931	24,967,867
Prince Edward Island	636,786	442,682	2,460	105,402	34,155	5,326,087	6,659,275
Nova Scotia.....	6,101,737	4,735,595	3	825,832	144,418	37,050,846	49,774,031
New Brunswick.....	5,420,178	3,415,765	34,278	485,624	—	29,141,906	39,326,931
Quebec.....	47,328,413	35,836,369	415,200	10,924,434	2,596,592	278,161,831	378,812,184
Ontario.....	70,414,256	58,481,262	377,480	4,942,484	5,376,885	391,762,285	553,055,576
Manitoba.....	6,175,082	5,227,456	27,841	2,463,031	1,558,305	43,916,369	60,386,485
Saskatchewan.....	5,669,188	6,306,940	4	1,080,003	—	47,898,735	62,410,602
Alberta.....	10,218,083	11,646,967	5	730,463	268,221	78,741,332	104,261,585
British Columbia.....	18,648,435	16,322,899	5	5	485,455	76,115,063	111,571,852
Yukon and N.W.T....	138,883	409,747	3,120	54,450	197,888	2,734,920	3,680,223
<b>Canada, 1969-70.</b>	<b>172,470,313</b>	<b>145,291,690</b>	<b>871,437<sup>3</sup></b>	<b>21,761,241</b>	<b>10,772,150</b>	<b>1,010,522,305</b>	<b>1,394,906,611</b>

<sup>1</sup> Operators' licences are issued for different periods in different provinces; see p. 885 for provincial regulations.

<sup>2</sup> Includes other items not shown such as transfer of motor vehicles, garage and service station licences, and fines for infractions of motor vehicle laws.

<sup>3</sup> Included with other motor vehicles.

<sup>4</sup> Included with miscellaneous revenues and therefore in total.

<sup>5</sup> Included with passenger automobiles.

<sup>6</sup> Not complete.

**Sales of Motive Fuels.**—In order to estimate the total amount of motive fuel purchased in Canada for use in motor vehicles on public streets and highways, it has been necessary to eliminate from the total the amount of motive fuel used for other purposes. Thus, from the total or gross sales, including imports and exports, the following are subtracted to obtain net sales: tax exempt sales to the Federal Government and other consumers, exports, and sales on which refunds were paid. Net sales are thus defined as sales on which a tax or taxes have been paid in full and are considered to approximate the actual amount of motive fuel purchased in Canada for use on public streets and highways. As shown in Table 7, consumption of taxable gasoline, which is used almost entirely for automotive purposes, rose 5.7 p.c. in 1969 and net sales of diesel oil 13.0 p.c.

**7.—Sales of Motive Fuels, by Province, 1965-69**

Province or Territory	1965	1966	1967	1968	1969
GASOLINE AND LIQUEFIED PETROLEUM GASES					
	gal.	gal.	gal.	gal.	gal.
Newfoundland.....	59,214,001	64,865,831	68,156,858	74,291,782	76,960,501
Prince Edward Island.....	21,625,345	23,912,161	23,979,138	26,035,262	27,978,540
Nova Scotia.....	136,170,762	145,158,633	150,583,472	163,869,289	176,437,481
New Brunswick.....	120,279,985	128,029,906	134,780,888	142,285,107	154,164,002
Quebec.....	1,060,362,285	1,144,022,116	1,200,647,032	1,258,472,161	1,318,121,416
Ontario.....	1,673,758,797	1,769,013,364	1,852,182,953	1,957,921,413	2,079,405,287
Manitoba.....	232,410,160	241,251,953	247,161,278	259,581,074	270,971,324
Saskatchewan.....	351,479,362	370,163,766	368,955,997	348,403,199	346,450,555
Alberta.....	457,092,775	481,041,874	497,666,777	523,684,614	551,732,766
British Columbia.....	441,806,409	492,890,837	534,953,600	558,722,384	598,327,670
Yukon and N.W.T.....	8,739,575	9,742,794	11,183,271	13,993,531	16,777,843
<b>Totals, Gross Sales.....</b>	<b>4,562,939,456</b>	<b>4,870,093,235</b>	<b>5,090,198,264</b>	<b>5,327,259,816</b>	<b>5,617,336,355</b>
Refunds and exemptions.....	563,554,501	598,126,797	610,109,931	569,183,882	589,072,444
<b>Totals, Net Sales.....</b>	<b>3,999,384,955</b>	<b>4,271,966,438</b>	<b>4,480,088,333</b>	<b>4,758,075,934</b>	<b>5,028,263,911</b>
DIESEL OIL					
	gal.	gal.	gal.	gal.	gal.
<b>Totals, Net Sales.....</b>	<b>259,943,441</b>	<b>299,389,896</b>	<b>317,757,198</b>	<b>343,414,011</b>	<b>388,115,899</b>

**Motor Carriers—Freight.\***—Statistics of the common carrier segment of the inter-city and rural motor carrier industry have been collected on a continuing basis since 1941. Statistics of contract carriers are available from 1958.

### 8.—Summary Statistics of Motor Carriers—Freight, 1968 and 1969

Item	Common		Contract	
	1968	1969	1968	1969
<b>Carriers Reporting</b> ..... No.	2,787	2,394	1,635	1,483
<b>Property Account—Fixed Assets (Motor carrier business)</b> ..... \$	517,023,335	547,159,334	147,799,125	150,336,473
<b>Operating Revenues</b> ..... \$	786,394,487	846,641,613	174,790,255	182,490,131
Freight—				
Inter-city and rural..... \$	755,534,173	808,213,452	163,165,994	170,398,353
Local..... \$	11,927,282	16,510,276	5,089,111	6,702,670
Other..... \$	18,933,032	21,917,885	6,535,150	5,389,108
<b>Operating Expenses</b> ..... \$	738,594,206	796,686,318	163,064,319	171,384,337
Maintenance..... \$	94,708,863	103,957,052	27,136,252	29,244,640
Wages of drivers and helpers..... \$	166,162,795	175,176,526	42,152,487	45,460,428
Other (fuel, insurance, fuel taxes, rents, depreciation and purchased transportation)..... \$	270,506,477	294,730,972	61,336,069	63,610,298
Licence expense..... \$	20,764,593	22,743,161	5,298,381	5,456,958
Administration and general..... \$	186,451,478	200,078,607	27,141,130	27,612,013
<b>Net Operating Revenues</b> ..... \$	47,800,281	49,955,295	11,725,936	11,105,794
<b>Fuel Consumed—</b>				
Gasoline..... '000 gal.	98,922	91,744	30,668	29,662
Diesel oil..... "	81,572	92,368	20,958	23,120
Liquefied petroleum gases..... "	—	—	—	—
<b>Employees—</b>				
Average employed during year..... No.	45,281	44,674	8,922	9,360
Total salaries and wages..... \$	298,350,557	311,070,076	57,264,334	63,075,845
Working proprietors..... No.	1,628	1,234	1,028	783
Withdrawals of working proprietors..... \$	7,885,714	..	6,221,675	..
<b>Equipment—</b>				
Trucks with gasoline engines..... No.	13,054	11,804	5,041	4,807
Trucks with diesel engines..... "	847	796	484	520
Road tractors with gasoline engines..... "	8,006	7,385	1,822	1,665
Road tractors with diesel engines..... "	7,144	7,774	1,906	1,903
Semi-trailers..... "	24,810	26,277	4,670	4,342
Trailers..... "	3,809	3,696	753	757

**Household Goods Movers and Storage Operators.†**—Statistics of household goods movers and storage operators, summarized in Table 9, were first presented separately in 1960; before that date, they were included either with motor carriers—freight or with warehousing, depending upon the predominant source of operating revenues of the companies concerned.

\* Statistics are given in more detail in Statistics Canada annual report *Motor Carriers—Freight*, Part I (Catalogue No. 53-222) and Part II (Catalogue No. 53-223).

† Statistics are given in more detail in Statistics Canada annual report *Moving and Storage, Household Goods* (Catalogue No. 53-221).

**9.—Summary Statistics of Household Goods Movers and Storage Operators, 1965-69**

Item		1965	1966	1967	1968	1969
<b>Companies Reporting</b> .....	<b>No.</b>	<b>222</b>	<b>246</b>	<b>287</b>	<b>316</b>	<b>259</b>
<b>Investment in Land, Warehouses, Vehicles, etc.</b> .....	<b>\$</b>	<b>36,677,325</b>	<b>44,415,161</b>	<b>52,408,118</b>	<b>55,737,683</b>	<b>53,154,421</b>
<b>Revenues</b> .....	<b>\$</b>	<b>59,829,107</b>	<b>69,010,938</b>	<b>77,893,273</b>	<b>77,988,766</b>	<b>77,507,749</b>
Cartage.....	\$	33,405,626	46,260,871	52,858,891	51,642,606	53,581,212
Storage.....	\$	6,716,600	8,707,749	9,600,643	9,848,532	9,607,731
Packing.....	\$	5,432,317	6,128,807	7,532,976	8,265,647	7,757,648
Other.....	\$	5,274,564	7,913,511	7,900,763	8,231,981	6,561,158
<b>Operating Expenses</b> .....	<b>\$</b>	<b>47,918,103</b>	<b>65,822,360</b>	<b>75,447,004</b>	<b>75,808,295</b>	<b>74,255,639</b>
Maintenance.....	\$	3,412,197	4,907,822	4,733,003	5,195,969	3,980,860
Salaries and wages (charged to operations)	\$	16,437,937	21,695,553	24,467,961	23,266,638	24,979,598
Cartage expenses.....	\$	3,117,692	5,461,210	5,501,160	5,832,441	3,973,371
Storage expenses.....	\$	2,865,304	3,945,071	4,947,441	4,626,319	6,035,342
Other operating expenses.....	\$	22,084,973	29,812,704	35,797,439	36,886,928	35,286,468
<b>Net Operating Revenues</b> .....	<b>\$</b>	<b>2,911,004</b>	<b>3,188,578</b>	<b>2,446,269</b>	<b>2,180,471</b>	<b>3,252,110</b>
<b>Employees—</b>						
Average employed during year.....	No.	4,864	5,927	6,520	6,296	5,902
Salaries and wages.....	\$	21,725,734	28,578,027	33,863,279	34,043,804	36,146,901
<b>Storage Capacity—</b>						
Household goods.....	cu. ft.	35,333,750	46,616,388	49,165,489	50,227,473	46,376,445
Other.....	"	12,630,680	15,764,910	15,921,747	14,794,663	17,480,852
<b>Vehicles—</b>						
Trucks.....	No.	1,785	2,082	2,401	2,298	1,951
Tractors.....	"	848	1,037	1,117	1,063	979
Semi-trailers.....	"	898	1,167	1,212	1,168	1,099
Trailers.....	"	39	51	145	81	50

**Passenger Buses.\***—The operations of companies predominantly engaged in passenger bus service are summarized in Table 10. Data refer to the for-hire segment of the industry. Only firms engaged in intercity and rural operations and having an annual gross revenue of \$6,000 or over are covered. Operators predominantly involved in the provision of school bus service are not included nor are airport servicing and urban transit bus operators.

\* Statistics are given in more detail in Statistics Canada annual report *Passenger Bus Statistics* (Catalogue No. 53-215).

**10.—Summary Statistics of Intercity and Rural Passenger Bus Companies, 1965-69**

NOTE.—Only carriers with annual gross revenue of \$6,000 or over are included.

Item		1965	1966	1967	1968	1969
<b>Carriers Reporting</b> .....	<b>No.</b>	<b>162</b>	<b>158</b>	<b>157</b>	<b>159</b>	<b>154</b>
<b>Property Account—Fixed Assets</b> .....	<b>\$</b>	<b>73,864,251</b>	<b>78,653,611</b>	<b>89,301,064</b>	<b>94,031,132</b>	<b>93,640,102</b>
<b>Revenues</b> .....	<b>\$</b>	<b>68,841,256</b>	<b>80,429,354</b>	<b>96,017,923</b>	<b>92,864,788</b>	<b>99,794,679</b>
Regular Passenger Service—						
Intercity and rural.....	\$	52,304,349	60,769,147	71,417,039	67,809,886	69,948,297
Urban and suburban.....	\$	891,364	1,063,730	881,959	1,268,847	1,569,011
Chartered service.....	\$	8,068,519	10,101,725	14,126,041	12,846,385	15,112,783
Other transportation revenue.....	\$	7,577,024	8,494,752	9,592,884	10,939,670	13,164,588
<b>Operating Expenses</b> .....	<b>\$</b>	<b>61,737,884</b>	<b>70,170,546</b>	<b>82,381,236</b>	<b>83,746,881</b>	<b>88,769,406</b>
Maintenance.....	\$	11,573,622	12,287,006	14,329,270	15,176,371	15,109,472
Wages and bonuses of drivers and helpers.....	\$	16,343,963	19,522,951	23,326,326	22,608,114	24,929,542
Other transportation expenses.....	\$	12,851,723	14,728,273	17,699,664	17,935,046	18,123,458
Operating taxes and licences.....	\$	4,573,880	5,254,826	6,286,545	6,514,764	6,538,261
Other operating expenses.....	\$	16,394,696	18,377,490	20,739,431	21,512,586	24,068,673
<b>Net Operating Revenues</b> .....	<b>\$</b>	<b>7,103,372</b>	<b>10,258,808</b>	<b>13,636,687</b>	<b>9,117,907</b>	<b>11,025,273</b>

### 10.—Summary Statistics of Intercity and Rural Passenger Bus Companies, 1965-69— concluded

Item		1965	1966	1967	1968	1969
<b>Traffic and Employees—</b>						
Passengers—						
Regular Routes—						
Intercity and rural.....	No.	45,606,246	49,840,586	51,977,079	48,697,347	42,667,621
Urban and suburban.....	"	4,570,831	4,759,006	4,011,541	4,739,623	4,685,491
Special and chartered service.....	"	6,504,753	9,053,905	11,133,244	11,291,166	11,823,555
Bus Miles—						
Regular Routes—						
Intercity and rural.....	No.	90,704,870	107,560,495	122,270,117	112,384,646	112,644,706
Urban and suburban.....	"	2,062,317	2,783,341	2,335,233	2,604,433	2,534,194
Special and chartered service.....	"	12,203,870	14,749,766	18,351,327	17,103,383	21,059,818
Gasoline consumed.....	gal.	3,677,222	3,551,898	3,332,326	3,141,615	3,046,586
Diesel oil consumed.....	"	11,040,793	13,204,813	16,531,222	15,043,087	15,563,373
Employees—						
Average employed during year.....	No.	4,738	5,192	5,651	5,695	5,817
Total salaries and wages.....	\$	25,854,643	30,512,856	36,149,606	36,588,298	40,212,749
Working proprietors.....	No.	53	46	35	38	43
Withdrawals of working proprietors.....	\$	152,718	197,050	133,872	126,779	175,413
<b>Equipment—</b>						
Buses.....	No.	2,622	2,746	2,906	2,924	2,869
Gasoline.....	"	1,086	1,100	1,087	1,076	1,093
Diesel.....	"	1,636	1,646	1,819	1,843	1,776

**Urban Transit Systems.**—Statistical information on urban transit systems includes operations of motor buses, trolley coaches, streetcars and subway cars carrying passengers in urban and suburban service.

### 11.—Summary Statistics of Urban Transit Systems, 1965-69

Item		1965	1966	1967	1968	1969
<b>Passenger Fares<sup>1</sup>.....</b>						
Motor bus.....	No.	985,164,840	1,036,423,243	1,084,790,597	1,055,636,787	1,050,107,678
Trolley coach.....	"	678,017,653	706,647,281	701,373,163	693,882,668	700,447,830
Streetcar.....	"	130,414,263	116,005,602	117,036,832	113,794,199	104,825,266
Subway car.....	"	124,787,132	96,826,090	86,038,913	76,513,018	67,425,356
Chartered.....	"	41,373,620	104,754,424	166,767,061	160,670,290	166,847,168
Intercity and rural services (all types of vehicles)....	"	10,332,687	9,852,174	11,417,371	9,069,626	8,654,166
Intercity and rural services (all types of vehicles)....	"	239,485	2,337,672	2,157,257	1,706,986	1,907,892
<b>Vehicle-Miles Run.....</b>						
Motor bus.....	No.	213,779,503	240,317,620	254,012,565	257,674,340	256,550,057
Trolley coach.....	"	152,806,059	166,857,144	168,948,801	174,305,754	174,439,573
Streetcar.....	"	27,654,912	24,545,355	24,597,530	24,231,728	22,145,391
Subway car.....	"	19,912,282	14,612,818	13,792,939	12,741,032	11,842,752
Chartered.....	"	9,644,797	30,309,257	40,630,393	41,418,888	43,575,654
Intercity and rural services (all types of vehicles)....	"	3,495,176	3,502,820	5,510,258	4,435,569	3,809,292
<b>Fuel Consumed—</b>						
Diesel oil.....	gal.	23,149,602	26,217,292	28,820,610	29,513,200	30,475,237
Gasoline.....	"	7,565,509	6,544,005	5,857,092	4,528,850	4,126,147
Liquid petroleum gases.....	"	256,069	246,863	189,366	158,386	168,970
<b>Passenger Vehicles in Service.....</b>						
Motor bus.....	No.	7,939	8,483	8,737	8,649	8,635
Trolley coach.....	"	5,774	6,103	6,384	6,436	6,616
Streetcar.....	"	1,096	989	975	967	870
Subway car.....	"	735	688	675	543	446
Subway car.....	"	334	703	703	703	703
<b>Finances—</b>						
Total assets <sup>2</sup> .....	\$	288,415,768	318,872,629	335,141,232	340,413,655	351,844,680
Long-term debt <sup>1</sup> .....	\$	161,536,125	177,127,897	182,564,138	182,677,670	183,848,689
Capital stock and surplus <sup>2</sup> .....	\$	82,276,931	87,980,805	89,744,518	92,392,244	99,436,067
Operating revenues.....	\$	164,054,532	182,551,307	217,835,451	222,563,348	241,075,868
Operating expenses.....	\$	166,745,551	186,873,252	220,189,545	230,055,914	243,140,239
Ratio of expenses to revenues.....	p.c.	101.64	102.37	101.08	103.36	100.86
Employees.....	No.	18,645	19,694	20,814	21,459	21,641
Salaries and wages.....	\$	106,345,817	121,270,890	135,387,582	158,969,321	168,035,620

<sup>1</sup> Initial revenue passenger fares, excluding transfers.  
Authority.

<sup>2</sup> Excludes British Columbia Hydro and Power



There are two subway systems in operation in Canada; the Toronto subway, which was officially opened on Mar. 30, 1954 and the Montreal subway, which began public operation on Oct. 17, 1966.

**Motor Vehicle Traffic Accidents.**—There were 532,881 motor vehicle traffic accidents reported in 1969 compared with 484,436 in the previous year. Deaths from such accidents numbered 5,318 in 1968 and 5,425 in 1969 as against 3,231 in 1959. Statistics for 1969, reported by place of occurrence, are given by province in Table 12 but it should be noted that, although motorists are required by law to report accidents, complete statistics of these accidents are not available for all provinces.

12.—Motor Vehicle Traffic Accidents, by Province, 1969

Item	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T. and N.W.T.	Canada
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
<b>Accidents Reported</b> .....	7,848	1,827	14,730	10,799	154,905	169,395	22,796	23,355	55,527	70,624	1,075	532,881
Fatal.....	74	38	210	181	1,442	1,410	152	177	379	467	19	4,549
Non-fatal.....	1,823	455	2,761	2,530	29,618	50,136	6,537	4,155	7,249	14,866	304	120,434
Property damage <sup>1</sup> .....	5,951	1,334	11,759	8,088	123,845	117,849	16,107	19,023	47,899	55,291	752	407,898
<b>Persons Killed</b> .....	94	40	244	228	1,709	1,683	171	223	468	542	23	5,425
Drivers.....	27	15	101	78	608	707	73	97	179	219	9	2,113
Passengers.....	30	10	70	73	492	526	47	85	173	180	10	1,696
Pedestrians.....	34	12	65	65	456	346	43	27	65	106	4	1,223
Bicyclists.....	3	1	5	6	68	40	4	6	7	10	—	150
Motorcyclists and passengers.....	—	2	3	3	85	51	4	4	9	23	—	184
Others.....	—	—	—	3	—	13	—	4	35	4	—	59
<b>Persons Injured</b> .....	2,754	717	3,815	3,761	44,378	74,902	9,472	6,614	11,495	22,535	476	180,829
Drivers.....	830	323	1,444	1,516	13,771	32,928	4,601	2,885	4,624	9,645	206	72,773
Passengers.....	1,157	309	1,437	1,580	18,922	29,730	3,792	3,065	4,963	10,146	234	75,335
Pedestrians.....	642	63	673	468	7,535	7,610	688	433	934	1,496	23	20,565
Bicyclists.....	58	11	104	98	1,835	1,799	133	94	225	410	5	4,772
Motorcyclists and passengers.....	58	11	139	72	2,315	2,697	201	114	351	811	6	6,775
Others.....	9	—	18	27	—	138	57	23	308	27	2	609
<b>Total Property Damage<sup>2</sup></b> .....	\$'000 4,358	1,057	8,359	7,562	90,858	101,237	10,498	12,753	29,567	41,406	1,127	311,773

<sup>1</sup> All reported accidents are those resulting in property damage estimated at \$100 or over.

<sup>2</sup> Estimate.

## PART III.—WATER TRANSPORT\*

**The Canada Shipping Act.**—Legislation regarding shipping is consolidated in the Canada Shipping Act (RSC 1970, c. S-9). Under the Act and its amendments, the Parliament of Canada accepts full responsibility for the regulation of Canadian shipping.

### Section 1.—Shipping Facilities and Traffic

#### Subsection 1.—Shipping

All Canadian waterways including canals, lakes and rivers are open on equal terms, except in the case of the coasting trade, to the shipping of all countries of the world so that Canadian shipping must compete with foreign flag shipping.

Within the region from approximately Havre St. Pierre on the St. Lawrence River upstream to the head of the Great Lakes, the carriage of goods or passengers from one

\* Information and statistics dealing with this subject have been supplied as follows: aids to navigation, canals, harbours, administrative services and marine services by the Ministry of Transport and the National Harbours Board; the St. Lawrence Seaway by the St. Lawrence Seaway Authority; canal traffic and statistics of shipping by the Transportation and Public Utilities Division, Statistics Canada; and shipping subsidies by the Director of Subsidized Steamship Services, Water Transport Committee, Canadian Transport Commission.

Canadian port to another Canadian port, commonly known as the coasting trade, is restricted to ships registered in Canada. Elsewhere in Canada, the coasting trade is open to all Commonwealth ships.

**Canadian Registry.**—Under Part I of the Canada Shipping Act, ships in excess of 15 tons net register and pleasure yachts in excess of 20 tons net are required to be registered; ships of lower tonnage may be registered voluntarily, otherwise they are required to be operated under a Vessel Licence if powered by a motor of 10 hp. or more. Sect. 6 of the Act restricts ownership to British subjects or bodies corporate incorporated under the law of a country of the Commonwealth or of the Republic of Ireland and having their principal place of business in those countries. Under the British Commonwealth Merchant Shipping Agreement, all Commonwealth ships are given the general designation 'British Ship', and a ship that should be but is not registered is not entitled to the privileges accorded to British ships. Ships in the planning stage or in course of construction may be recorded before registry by a Registrar of Shipping at one of the 75 Ports of Registry in Canada.

### 1.—Vessels on the Canadian Shipping Registry, by Province, as at Dec. 31, 1968-70

Province or Territory	1968		1969		1970	
	Ships	Gross Tonnage	Ships	Gross Tonnage	Ships	Gross Tonnage
	No.	No.	No.	No.	No.	No.
Newfoundland.....	1,091	159,707	1,063	156,373	1,071	156,429
Prince Edward Island.....	1,146	38,044	1,197	39,079	1,312	45,489
Nova Scotia.....	7,560	189,722	7,042	193,569	2,702	156,819
New Brunswick.....	2,720	152,561	2,790	161,380	7,124	217,797
Quebec.....	3,059	1,066,489	3,034	1,023,670	3,067	981,242
Ontario.....	2,641	1,103,683	2,669	1,110,023	2,724	1,135,213
Manitoba.....	109	55,366	112	57,059	116	57,238
Saskatchewan.....	2	123	2	123	2	123
Alberta.....	15	873	25	2,423	36	7,727
British Columbia.....	8,614	945,990	9,131	1,049,224	9,533	1,093,647
Yukon Territory.....	7	1,470	7	1,470	7	1,470
<b>Totals.....</b>	<b>26,964</b>	<b>3,714,028</b>	<b>27,072</b>	<b>3,794,393</b>	<b>27,694</b>	<b>3,853,194</b>

**Shipping Traffic.**—Table 2 shows the number and tonnage of all vessels (except those of less than 15 registered net tons, naval vessels and, for 1962-69, fishing vessels) entering Canadian customs and non-customs ports.

### 2.—Vessels Entered at Canadian Ports, 1966-69

Year	In International Sea- borne Shipping		In Coastwise Shipping		Totals	
	Vessels	Registered Net Tons	Vessels	Registered Net Tons	Vessels	Registered Net Tons
	No.	No.	No.	No.	No.	No.
1960.....	33,397	74,805,002	120,125	88,493,116	153,522	163,298,118
1961.....	31,832	77,140,524	115,339	91,157,708	147,171	168,298,232
1962.....	30,269	81,942,501	112,325	87,767,018	142,594	169,709,519
1963.....	29,169	87,385,238	107,232	87,257,470	136,401	174,642,708
1964.....	29,809	92,799,912	105,186	91,007,726	134,995	183,807,638
1965.....	28,792	98,128,231	99,153	89,363,142	127,945	187,491,373
1966.....	28,871	99,852,760	102,400	96,648,426	131,271	196,501,186
1967.....	27,025	97,488,757	95,999	88,639,451	123,024	186,128,208
1968.....	26,761	102,055,092	89,154	90,767,420	115,915	192,822,512
1969.....	25,082	98,632,758	88,543	93,883,371	113,625	192,516,129

### 3.—Cargoes Loaded and Unloaded at Principal Canadian Ports from Vessels in International Seaborne and Coastwise Shipping, by Province, 1969 with Totals for 1968

NOTE.—Only ports handling over 300,000 tons are listed.

Province and Port	International		Coastwise		Total 1969	Total 1968
	Loaded	Unloaded	Loaded	Unloaded		
	tons	tons	tons	tons	tons	tons
<b>Newfoundland</b> .....	<b>1,630,683</b>	<b>1,715,397</b>	<b>1,273,366</b>	<b>2,061,978</b>	<b>6,681,424</b>	<b>6,749,412</b>
Holyrood.....	31,530	809,556	513,455	89	1,354,630	1,093,286
Corner Brook.....	345,030	199,642	36,893	357,216	938,781	1,010,948
St. John's.....	11,353	153,944	108,127	608,386	881,810	875,912
Botwood.....	403,981	118,271	—	95,672	617,924	521,618
Port aux Basques.....	3,793	157	71,429	434,255	509,634	455,059
Stephenville.....	391,621	9,039	56,666	22,206	479,532	437,874
<b>Prince Edward Island</b> .....	<b>92,357</b>	<b>128,602</b>	<b>188,034</b>	<b>464,242</b>	<b>873,265</b>	<b>852,773</b>
Charlottetown.....	12,326	128,602	174,800	443,453	759,181	767,297
<b>Nova Scotia</b> .....	<b>5,899,495</b>	<b>6,122,718</b>	<b>3,487,346</b>	<b>2,298,291</b>	<b>17,807,850</b>	<b>17,436,941</b>
Halifax.....	2,528,794	5,124,391	2,194,239	516,413	10,363,837	9,650,683
Sydney.....	99,555	840,855	257,608	1,300,065	2,498,083	3,305,393
Hantsport.....	1,930,434	2,866	—	—	1,933,300	1,754,406
Port Hawkesbury.....	630,081	130,007	53,021	58,037	871,146	680,571
Little Narrows.....	216,058	—	308,542	—	524,600	463,418
North Sydney.....	7,666	135	418,819	95,830	522,450	495,243
<b>New Brunswick</b> .....	<b>2,128,308</b>	<b>3,720,231</b>	<b>1,243,217</b>	<b>1,167,774</b>	<b>8,259,530</b>	<b>7,468,477</b>
Saint John.....	1,307,857	3,189,227	1,193,708	447,408	6,138,200	5,475,893
Dalhousie.....	567,769	135,551	—	52,830	756,150	694,064
Newcastle.....	88,134	55,184	—	183,270	326,588	295,293
<b>Quebec</b> .....	<b>37,264,073</b>	<b>17,944,319</b>	<b>12,806,215</b>	<b>13,515,509</b>	<b>81,530,116</b>	<b>86,567,872</b>
Sept Îles-Pointe Noire.....	14,877,038	592,017	3,049,333	584,183	19,102,571	25,946,988
Montreal.....	3,429,461	5,800,153	5,685,599	2,787,030	17,702,243	17,373,733
Port Cartier.....	10,390,143	1,141,352	18,664	753,446	12,303,605	12,607,884
Quebec.....	1,988,142	2,057,799	222,935	3,025,665	7,294,541	6,064,947
Baie Comeau.....	2,253,817	1,710,932	214,054	762,356	4,941,159	4,706,066
Port Alfred.....	559,964	3,692,262	2,085	441,538	4,695,849	4,389,514
Sorel.....	1,306,593	1,031,116	21,278	2,298,232	4,657,219	4,535,013
Trois-Rivières.....	1,203,146	1,029,535	84,581	1,137,940	3,405,202	3,099,546
Havre St. Pierre.....	279,333	—	1,699,911	17,869	1,997,113	1,831,206
Contrecoeur.....	630,248	715,902	130,181	21,250	1,497,581	1,345,595
Forestville.....	—	—	849,020	31,921	880,941	882,126
Chicoutimi.....	—	82,342	1,222	510,135	593,699	644,922
Rimouski.....	6,823	15,610	30,777	434,464	487,674	514,885
Valleyfield.....	8,420	19,612	79,019	197,100	304,151	342,507
<b>Ontario</b> .....	<b>9,237,212</b>	<b>22,809,435</b>	<b>17,135,790</b>	<b>16,525,577</b>	<b>65,708,014</b>	<b>65,238,638</b>
Thunder Bay.....	3,295,490	189,077	9,321,350	1,090,134	13,896,051	13,462,951
Hamilton.....	115,906	6,799,885	473,816	3,529,802	11,119,409	11,998,424
Toronto.....	273,431	3,912,252	167,993	2,045,974	6,399,650	5,710,052
Sarnia.....	176,987	1,747,551	2,360,669	516,885	4,802,092	4,259,655
Port Credit.....	4,300	3,803,182	395,949	175,923	4,379,354	3,519,200
Sault Ste. Marie.....	179,288	2,433,683	144,382	1,510,429	4,267,782	5,245,288
Windsor Walkerville.....	416,520	1,430,716	429,790	507,704	2,784,730	3,201,822
Port Colborne.....	1,283,852	313,115	45,164	838,074	2,440,205	2,368,377
Clarkson.....	24,655	25,584	395,134	1,689,470	2,134,843	2,034,768
Goderich.....	578,924	26,180	498,141	383,365	1,486,610	1,326,220
Colborne.....	6,850	—	1,411,385	—	1,418,235	1,433,962
Pictou.....	822,051	112,303	263,800	25,907	1,224,061	1,192,370
Little Current.....	789,892	141,357	31,718	69,827	1,032,794	1,115,310
Thorold.....	164,283	271,966	18,440	255,888	710,577	681,219
Depot Harbour.....	705,902	—	—	—	705,902	728,979
Midland.....	—	86,611	150	523,410	610,171	421,986
Prescott.....	—	134,658	57,522	373,287	565,467	729,468
Parry Sound.....	15,076	11,574	—	432,886	459,536	428,054
Kingston.....	—	59,610	18,080	354,697	432,387	526,850
St. Catharines.....	—	185,729	2,439	202,592	390,760	342,421
Amherstburg.....	—	193,007	147,669	—	340,676	295,585

**3.—Cargoes Loaded and Unloaded at Principal Canadian Ports from Vessels in International Seaborne and Coastwise Shipping, by Province, 1969 with Totals for 1968—concluded**

Province or Territory and Port	International		Coastwise		Total 1969	Total 1968
	Loaded	Unloaded	Loaded	Unloaded		
	tons	tons	tons	tons	tons	tons
<b>Ontario—concluded</b>						
Oakville.....	6,000	124,013	175,323	34,159	339,495	196,283
Port Stanley.....	—	71,855	541	263,945	336,341	365,979
Marathon.....	130,517	96,577	932	87,738	315,764	326,290
Oshawa.....	—	160,558	1,000	146,096	307,654	341,736
<b>Manitoba</b>	<b>652,648</b>	<b>39,928</b>	<b>20,872</b>	<b>1,459</b>	<b>714,907</b>	<b>726,388</b>
Churchill.....	652,648	39,928	20,872	1,459	714,907	726,388
<b>British Columbia</b>	<b>20,733,013</b>	<b>4,540,926</b>	<b>21,042,889</b>	<b>21,031,055</b>	<b>67,347,883</b>	<b>68,022,230</b>
Vancouver.....	10,598,421	2,534,645	5,808,839	5,036,171	23,978,076	25,791,058
New Westminster.....	977,663	257,629	2,198,584	1,540,850	4,974,726	5,064,422
Duncan Bay—Campbell River.....	447,880	114,940	363,649	1,837,619	2,764,088	2,845,614
Nanaimo.....	875,993	81,617	265,515	1,494,914	2,718,039	2,717,938
Victoria.....	1,101,697	144,302	472,361	720,056	2,438,416	2,446,599
Britannia Beach.....	112,652	2,286	1,211,200	859,710	2,185,848	1,910,810
Crofton.....	725,692	48,715	64,873	1,274,557	2,113,837	1,937,942
Powell River.....	344,640	102,719	608,095	940,716	1,996,170	1,430,244
Port Alberni.....	888,394	20,709	55,554	466,051	1,430,708	1,395,893
Kitimat.....	156,973	681,647	429,425	89,503	1,357,548	899,721
Prince Rupert.....	479,657	311,941	195,541	352,082	1,339,221	1,691,375
Port Mellon.....	40,950	—	63,965	1,163,399	1,268,314	890,753
Tasu.....	1,100,111	—	—	14,191	1,114,302	922,233
Vananda.....	362,213	16,000	655,849	4,326	1,038,388	776,254
Ladysmith.....	86,109	79	707,730	72,345	866,263	1,107,386
Centre Bay.....	—	—	368,838	401,805	770,643	772,141
Vanguard.....	—	—	249,997	431,315	681,312	320,141
Chernaimus.....	387,737	8,018	129,400	153,418	658,573	670,209
Texada.....	606,104	—	4,480	9,171	619,755	550,026
Gold River.....	34,807	25,619	202,303	345,539	608,268	403,978
Blubber Bay.....	542,278	—	45,419	690	588,387	557,344
North Arm Fraser River.....	—	1,280	150,993	416,059	568,332	833,696
Beaver Cove.....	2,196	239	549,647	13,560	565,642	548,911
Marble Bay.....	426,200	—	69,407	—	495,607	822,408
Ocean Falls.....	60,096	77,397	101,784	214,370	453,647	333,177
Teakerner Arm.....	—	—	319,414	122,529	441,943	419,279
West Bay.....	—	—	17,050	326,481	343,531	374,663
Quatsino.....	46,789	91,056	138,457	61,464	337,766	296,151
Andy's Bay.....	—	—	3,700	324,679	328,379	521,035
Bamberton.....	712	6,807	298,521	18,339	324,379	351,852
Squamish.....	24,594	—	186,698	103,982	315,274	328,657
<b>Northwest Territories.....</b>	<b>—</b>	<b>19,275</b>	<b>1,644</b>	<b>92,920</b>	<b>113,839</b>	<b>64,452</b>
<b>Totals.....</b>	<b>77,637,819</b>	<b>57,040,831</b>	<b>57,199,373</b>	<b>57,158,805</b>	<b>249,036,828</b>	<b>253,127,183</b>

The freight movement through a large port takes a number of different forms. These include cargoes for or from foreign countries and cargoes loaded and unloaded in coastwise shipping, i.e., domestic freight moving between Canadian points. There is, as well, the in-transit movement in vessels that pass through the harbour without loading or unloading and the movement from one point to another within the harbour, which in many ports amounts to a large volume.

Shipping statistics, which cover traffic in and out of both customs and non-customs ports, do not include freight in transit or freight moved from one point to another within the harbour. Table 4 shows the principal commodities loaded and unloaded in foreign and coastwise shipping at the 17 ports handling the largest cargo volumes in 1969. These ports handled 74.6 p.c. of all Canada's international shipping and 52.9 p.c. of the coastwise trade. The specific commodities shown are those transported in volume and often in bulk form.



#### 4.—Principal Commodities in Water-Borne Cargo Loaded and Unloaded at Ports Handling the Largest Tonnages in 1969

NOTE.—Only commodities totalling over 50,000 tons are listed.

Port and Commodity	International		Coastwise		Total
	Loaded	Unloaded	Loaded	Unloaded	
	tons	tons	tons	tons	
<b>Vancouver</b> .....	<b>10,598,421</b>	<b>2,534,645</b>	<b>5,808,839</b>	<b>5,036,171</b>	<b>23,978,076</b>
Wheat.....	3,354,820	—	2,201	—	3,357,021
Pulpwood.....	177,376	3,000	2,509,419	141,866	2,831,661
Sand and gravel.....	18,752	437,551	7,584	2,146,220	2,610,107
Logs.....	200,056	15,918	65,720	1,410,260	1,691,954
Fuel oil.....	118,806	397,433	942,122	34	1,458,395
Lumber and timber.....	876,064	9,819	266,714	179,880	1,332,477
Potash.....	1,318,309	3,241	80	—	1,321,630
Sulphur in ores.....	1,118,121	1	24,175	—	1,142,297
Coal, bituminous.....	1,008,912	—	5	—	1,008,917
Hogged fuel.....	29,200	—	766,364	3,200	798,764
Pulp.....	267,504	2,194	9,148	344,494	623,340
Newsprint.....	29,864	—	32	517,451	547,347
Salt.....	1	346,036	126,680	—	472,717
Gasoline.....	18,921	52,952	318,979	77	390,929
Inorganic chemicals.....	25,945	54,027	248,996	1,205	330,173
Barley.....	323,937	—	—	—	323,937
Petroleum coal products.....	282,937	2,631	5,224	—	290,792
Cement.....	92,644	22,789	14,735	116,750	246,918
Copper ore and concentrates.....	195,845	29,840	—	—	225,685
Asbestos.....	88,855	135,654	711	—	225,220
Phosphate rock.....	—	217,225	—	—	217,225
Rapeseed.....	209,240	—	—	—	209,240
Waste and scrap, <i>n.e.s.</i> .....	1,090	181	140,909	15,683	157,863
Flaxseed.....	121,761	11	—	—	121,772
Fertilizers, <i>n.e.s.</i> .....	113,708	1,227	3,278	—	118,213
Plate and sheet steel.....	259	102,114	6,332	—	108,705
Limestone.....	3,000	2,000	—	94,132	99,132
Metallic salts.....	13,545	9,604	74,131	1,306	98,636
Machinery, <i>n.e.s.</i> .....	5,163	25,827	45,138	14,265	90,393
Structural shapes.....	6,504	64,451	14,983	628	86,566
Veneer and plywood.....	50,826	23,353	842	—	75,021
Miscellaneous food preparations, <i>n.e.s.</i> .....	17,180	19,613	33,397	50	70,240
Hulls, screenings, chaff.....	69,803	—	—	—	69,803
Raw sugar.....	—	66,792	—	—	66,792
Personal and household goods.....	9,728	50,189	11	—	59,928
Passenger auto and chassis.....	306	49,011	786	215	50,318
Other commodities not listed.....	429,439	389,961	180,093	48,455	1,047,948
<b>Sept Îles-Pointe Noire</b> .....	<b>14,877,038</b>	<b>592,077</b>	<b>3,049,333</b>	<b>584,183</b>	<b>19,102,631</b>
Iron ore and concentrates.....	14,868,851	—	2,873,690	—	17,742,541
Fuel oil.....	—	411,522	2,689	184,142	598,353
Coal, bituminous.....	—	—	134,908	134,957	269,865
Bentonite.....	—	154,707	—	—	154,707
Gasoline.....	—	11,847	261	43,319	55,427
Other commodities not listed.....	8,187	14,001	37,785	221,765	281,738
<b>Montreal</b> .....	<b>3,429,461</b>	<b>5,809,153</b>	<b>5,685,599</b>	<b>2,787,030</b>	<b>17,702,243</b>
Fuel oil.....	290,522	1,606,762	3,503,032	80,683	5,480,999
Wheat.....	571,516	35,458	60	1,405,935	2,012,969
Gasoline.....	—	346,380	1,427,058	27,599	1,801,037
Raw sugar.....	—	399,558	—	—	399,558
Barley.....	45,208	14,002	—	333,447	392,657
Corn.....	68,778	300,493	—	16,363	385,634
Coal, bituminous.....	75	331,916	62	—	332,053
Salt.....	6	94,493	50	228,314	322,863
Gypsum.....	30	20	10,155	285,799	296,004
Crude petroleum.....	—	288,499	—	—	288,499
Structural shapes.....	6,272	205,320	47,622	275	259,489
Asbestos.....	244,964	4,480	—	—	249,444
Wheat flour.....	188,856	11,009	1,460	843	202,168
Metallic salts.....	11,185	150,256	5,487	13,378	180,306
Lubricating oil and grease.....	1,163	25,475	142,233	8,452	177,323
Petroleum coal products, <i>n.e.s.</i> .....	7,561	20,590	88,482	56,776	173,409
Fluorspar.....	82,145	78,206	—	—	160,351
Machinery, <i>n.e.s.</i> .....	32,557	66,710	41,633	8,121	149,021
Organic chemicals, <i>n.e.s.</i> .....	62,836	85,307	403	304	148,850
Plate and sheet steel.....	33,351	62,171	3,561	36,066	135,149
Molasses, crude.....	—	119,534	—	—	119,534

# 4 — Principal Commodities in Water-Borne Cargo Loaded and Unloaded at Ports Handling the Largest Tonnages in 1969—continued

Port and Commodity	International		Coastwise		Total
	Loaded	Unloaded	Loaded	Unloaded	
	tons	tons	tons	tons	tons
<b>Montreal—concluded</b>					
Manganese ore.....	11,663	71,214	28,629	—	111,506
Pulp.....	104,997	5,871	16	98	110,982
Oats.....	6,201	—	—	102,709	108,910
Milk powder.....	102,418	492	290	12	103,212
Soybeans.....	53,108	30,339	—	19,118	102,565
Miscellaneous food preparations, <i>n.e.s.</i> .....	21,561	12,297	58,404	9,322	101,584
Passenger auto and chassis.....	3,324	96,249	332	437	100,342
Copper and alloys.....	92,869	1,557	99	3,059	97,584
Zinc and alloys.....	78,603	2,581	204	805	82,193
Alumina, bauxite ores.....	14,770	62,723	—	—	77,493
Meat fresh or frozen.....	10,805	60,755	2,570	91	74,221
Building paper and board.....	20,024	16,817	35,387	1,560	73,788
Containers, closures.....	15,640	43,155	7,502	7,482	73,779
Bars and rods, steel.....	9,318	50,355	6,033	6,724	72,430
Personal and household goods.....	10,328	59,897	856	173	71,254
Textile fabricated material, <i>n.e.s.</i> .....	9,509	47,630	13,129	170	70,438
Iron and steel scrap.....	68,098	188	—	728	69,014
Newsprint.....	63,915	—	—	598	64,513
Plastic materials.....	44,105	11,307	623	658	56,693
Non-ferrous metal scrap.....	54,456	1,139	73	395	56,063
Glass basic products.....	1,026	49,032	3,107	—	53,165
Metal fabricated basic products.....	7,999	25,924	17,419	1,514	52,856
Ferro-alloys.....	22,756	17,032	12,805	—	52,593
Malt and malt flour.....	33,612	20	—	18,931	52,563
Equipment, miscellaneous.....	13,447	28,622	8,224	682	50,975
Raw hides and skins.....	49,100	898	—	68	50,066
Other commodities not listed.....	858,784	857,420	218,599	109,341	2,044,144
<b>Thunder Bay.....</b>	<b>3,295,490</b>	<b>189,077</b>	<b>9,321,350</b>	<b>1,090,134</b>	<b>13,896,051</b>
Wheat.....	87,926	—	5,110,810	—	5,198,736
Iron ore and concentrates.....	2,400,192	—	2,163,363	—	4,563,555
Barley.....	190,767	—	1,124,682	—	1,315,449
Oats.....	11,256	—	345,132	—	356,388
Pulpwood.....	14,800	—	23,000	238,750	276,550
Flaxseed.....	57,734	—	185,551	—	243,285
Newsprint.....	241,031	—	1,276	—	242,307
Fuel oil.....	—	—	—	220,529	220,529
Gasoline.....	—	—	—	141,131	141,131
Hulls, screenings and chaff.....	91,105	—	49,349	—	140,454
Malt and malt flour.....	27,839	—	104,110	—	131,949
Plate and sheet steel.....	9	1,781	2	108,758	110,550
Coal, bituminous.....	—	110,425	—	—	110,425
Salt.....	—	—	—	87,001	87,001
Miscellaneous food preparations.....	—	4	77	78,977	79,058
Wheat flour.....	7,893	—	68,390	—	76,283
Potash.....	65,549	—	139	—	65,688
Rapeseed.....	36,733	—	21,607	—	58,340
Paperboard.....	—	—	56,956	193	57,149
Rye.....	19,488	—	32,696	—	52,184
Other commodities not listed.....	43,168	76,867	34,210	214,795	369,040
<b>Port Cartier.....</b>	<b>10,390,143</b>	<b>1,141,352</b>	<b>18,664</b>	<b>753,446</b>	<b>12,303,605</b>
Iron ore concentrates.....	8,611,885	—	18,261	—	8,630,146
Wheat.....	964,099	310,018	—	667,437	1,941,554
Corn.....	427,252	348,911	—	—	776,163
Soybeans.....	290,976	317,564	—	21,032	629,572
Fuel oil.....	—	122,447	—	800	123,247
Flaxseed.....	52,874	24,167	—	28,717	105,758
Barley.....	41,196	11,580	—	31,348	84,124
Other commodities not listed.....	1,861	6,665	403	4,112	13,041
<b>Hamilton.....</b>	<b>315,906</b>	<b>6,799,885</b>	<b>473,816</b>	<b>3,529,802</b>	<b>11,119,409</b>
Iron ore concentrates.....	—	2,096,134	—	2,778,083	4,874,217
Coal, bituminous.....	—	4,073,209	—	—	4,073,208
Fuel oil.....	—	138,878	—	365,122	504,001
Plate and sheet steel.....	24,723	5,597	184,855	1,624	218,799
Wheat.....	—	—	76,143	109,772	185,915
Soybeans.....	—	134,007	37,422	—	171,429
Gasoline.....	—	—	—	127,055	127,055
Coke.....	109,130	—	—	—	109,130

#### 4.—Principal Commodities in Water-Borne Cargo Loaded and Unloaded at Ports Handling the Largest Tonnages in 1969—continued

Port and Commodity	International		Coastwise		Total
	Loaded	Unloaded	Loaded	Unloaded	
	tons	tons	tons	tons	
<b>Hamilton—concluded</b>					
Sand and gravel.....	—	98,223	—	51	98,274
Petroleum coal products.....	4,794	47,338	6,760	—	58,892
Other commodities not listed.....	177,259	206,499	168,636	148,095	700,489
<b>Halifax.....</b>	<b>2,528,794</b>	<b>5,124,391</b>	<b>2,194,239</b>	<b>516,413</b>	<b>10,363,837</b>
Crude petroleum.....	—	3,946,296	—	—	3,946,296
Fuel oil.....	72,187	876,592	1,465,469	70,713	2,484,961
Gypsum.....	1,585,314	10	13,384	—	1,598,708
Gasoline.....	1,931	7,302	679,980	190,914	880,127
Wheat.....	335,757	—	—	195,962	531,719
Wheat flour.....	104,355	—	3,316	—	107,671
Iron ore and concentrates.....	11,588	40,175	—	—	51,763
Other commodities not listed.....	417,662	254,016	32,090	58,824	762,592
<b>Quebec.....</b>	<b>1,988,142</b>	<b>2,057,779</b>	<b>222,935</b>	<b>3,025,665</b>	<b>7,294,521</b>
Fuel oil.....	—	1,116,764	125,992	751,350	1,994,106
Pulpwood.....	2,776	—	37	901,865	904,678
Wheat.....	396,519	138,483	1,628	316,257	852,887
Gasoline.....	—	114,528	56,438	642,389	813,355
Corn.....	138,034	376,204	—	—	514,238
Zinc ore concentrates.....	435,476	—	—	—	435,476
Newsprint.....	332,738	—	—	—	332,738
Soybeans.....	121,159	140,664	—	10,559	272,382
Asbestos.....	205,541	—	—	—	205,541
Barley.....	—	—	634	181,287	181,921
Flaxseed.....	55,895	23,905	—	81,956	141,756
Oats.....	128	—	245	73,697	74,070
Iron and steel scrap.....	55,152	—	—	909	56,061
Pulp.....	51,115	—	—	—	51,115
Other commodities not listed.....	193,609	147,231	37,961	85,396	464,197
<b>Toronto.....</b>	<b>273,431</b>	<b>3,912,252</b>	<b>167,993</b>	<b>2,045,974</b>	<b>6,399,650</b>
Coal, bituminous.....	—	2,300,155	—	246,054	2,546,209
Fuel oil.....	10,400	189,358	74,990	618,594	893,342
Cement.....	259	573	—	403,885	404,717
Soybeans.....	2,117	325,469	34,605	23,979	386,170
Wheat.....	5,115	—	6,300	229,169	240,584
Salt.....	—	79,806	—	144,970	224,776
Gasoline.....	—	—	48,695	146,343	195,038
Raw sugar.....	—	165,656	—	—	165,656
Lubricating oil and greases.....	212	96,541	—	3,400	100,153
Structural shapes.....	2,113	67,585	—	—	69,698
Malt flour.....	—	—	—	68,605	68,605
Vegetable oils and fats, n.e.s.....	911	55,521	—	56,432	56,432
Barley.....	—	—	—	53,046	53,046
Other commodities not listed.....	252,304	631,588	3,403	107,929	995,224
<b>Saint John.....</b>	<b>1,307,857</b>	<b>3,189,227</b>	<b>1,193,708</b>	<b>447,408</b>	<b>6,133,200</b>
Crude petroleum.....	—	2,295,486	—	—	2,295,486
Fuel oil.....	—	343,846	716,435	251,375	1,311,656
Gasoline.....	—	—	435,673	163,019	598,692
Wheat.....	366,869	—	—	—	366,869
Raw sugar.....	—	297,030	—	—	297,030
Wheat flour.....	168,922	—	7,085	—	176,007
Fresh fruits and berries.....	86,282	2,040	—	—	88,322
Potatoes.....	86,800	—	—	—	86,800
Newsprint.....	75,012	—	—	—	75,012
Pulp.....	63,942	5	547	—	64,494
Pulpwood.....	58,332	—	—	—	58,332
Other commodities not listed.....	401,698	250,820	33,968	33,014	719,500
<b>New Westminster.....</b>	<b>977,663</b>	<b>257,629</b>	<b>2,198,584</b>	<b>1,540,850</b>	<b>4,974,726</b>
Pulpwood.....	127,942	588	1,150,962	2,900	1,282,392
Sand and gravel.....	—	4,774	791,301	51,099	847,174
Logs.....	2,190	975	39,410	591,120	633,695
Limestone.....	—	—	1,828	607,447	609,275
Lumber and timber.....	423,122	3,671	44,546	73,901	545,240
Cement.....	10,000	—	11,895	133,018	154,913
Veneer and plywood.....	108,024	413	—	45	108,482
Pulp.....	30,162	27,524	400	24,325	82,411

#### 4.—Principal Commodities in Water-Borne Cargo Loaded and Unloaded at Ports Handling the Largest Tonnages in 1969—concluded

Port and Commodity	International		Coastwise		Total
	Loaded	Unloaded	Loaded	Unloaded	
	tons	tons	tons	tons	tons
<b>New Westminster—concluded</b>					
Wheat.....	68,572	—	6,163	—	74,735
Plate and sheet steel.....	—	64,843	—	4,938	69,781
Waste and scrap, <i>n.e.s.</i> .....	1,260	3	65,936	100	67,299
Hogged fuel.....	5,400	—	60,920	—	66,320
Gypsum.....	—	51,000	—	2,300	53,300
Other commodities not listed.....	200,991	103,838	25,223	49,657	379,709
<b>Bale Comeau.....</b>	<b>2,253,817</b>	<b>1,710,932</b>	<b>214,054</b>	<b>762,356</b>	<b>4,941,159</b>
Wheat.....	702,307	305,906	—	424,490	1,432,703
Corn.....	626,890	577,533	—	—	1,204,423
Soybeans.....	301,100	288,709	—	49,396	639,205
Newsprint.....	328,472	—	506	—	328,978
Pulpwood.....	131,779	—	153,805	375	285,959
Fuel oil.....	—	162,548	—	98,725	261,273
Alumina and bauxite ores.....	—	217,443	—	—	217,443
Flaxseed.....	91,918	35,256	—	59,505	186,679
Aluminum.....	34,020	—	32,596	—	66,616
Coke.....	—	47,534	—	3,718	51,252
Other commodities not listed.....	37,331	76,003	27,147	126,147	266,628
<b>Sarnia.....</b>	<b>176,987</b>	<b>1,747,551</b>	<b>2,360,669</b>	<b>516,885</b>	<b>4,802,092</b>
Fuel oil.....	15,560	—	1,200,665	15,718	1,231,943
Coal, bituminous.....	—	1,178,011	—	—	1,178,011
Gasoline.....	—	12,150	817,629	—	829,779
Limestone.....	800	384,501	—	—	385,301
Petroleum coal products.....	12	71,212	75,473	114,310	261,007
Wheat.....	—	—	47,849	159,844	207,693
Lubricating oil and grease.....	—	—	20,243	117,740	137,983
Organic chemicals, <i>n.e.s.</i> .....	76,130	21,806	2,517	111	100,564
Inorganic chemicals, <i>n.e.s.</i> .....	—	—	89,520	3	89,523
Sand and gravel.....	—	59,195	—	—	59,195
Other commodities not listed.....	84,485	20,676	106,773	109,159	321,093
<b>Port Alfred.....</b>	<b>559,964</b>	<b>3,692,262</b>	<b>2,085</b>	<b>441,538</b>	<b>4,695,849</b>
Alumina and bauxite ores.....	531	2,635,266	—	—	2,635,797
Fuel oil.....	—	589,325	—	—	589,325
Coke.....	—	356,923	—	—	356,923
Newsprint.....	280,017	—	—	—	280,017
Pulpwood.....	—	—	—	259,030	259,030
Aluminum.....	246,484	18	280	—	246,782
Fluorspar.....	274	39,860	—	101,515	141,649
Salt.....	—	—	—	76,222	76,222
Other commodities not listed.....	32,658	70,870	1,805	4,771	110,104
<b>Sorel.....</b>	<b>1,306,593</b>	<b>1,031,116</b>	<b>21,278</b>	<b>2,298,232</b>	<b>4,657,219</b>
Titanium ore.....	—	—	—	1,699,251	1,699,251
Fuel oil.....	—	478,783	—	409,962	888,745
Slag, drosses, byproducts.....	635,341	—	—	—	635,341
Pig iron.....	480,192	—	5,671	—	485,863
Wheat.....	161,883	—	3,173	140,899	305,955
Coal, <i>n.e.s.</i> .....	—	241,817	—	—	241,817
Phosphate rock.....	—	228,130	—	—	228,130
Other commodities not listed.....	29,177	82,386	12,434	43,120	172,117
<b>Port Credit.....</b>	<b>4,300</b>	<b>3,803,182</b>	<b>395,949</b>	<b>175,923</b>	<b>4,379,354</b>
Coal bituminous.....	—	3,703,422	—	—	3,703,422
Fuel oil.....	4,300	—	179,577	2,300	186,177
Crude petroleum.....	—	74,360	—	—	74,360
Paperboard.....	—	—	6,725	46,343	53,068
Other commodities not listed.....	—	25,400	209,647	127,280	362,327
<b>Sault Ste. Marie.....</b>	<b>179,288</b>	<b>2,433,683</b>	<b>144,382</b>	<b>1,510,429</b>	<b>4,267,782</b>
Coal, bituminous.....	—	1,938,503	—	—	1,938,503
Iron ore and concentrates.....	—	—	—	1,094,346	1,094,346
Limestone.....	—	419,423	—	—	419,423
Fuel oil.....	—	63,047	—	234,430	297,477
Gasoline.....	—	—	—	111,842	111,842
Plate and sheet steel.....	25,266	441	63,343	18	92,068
Pig iron.....	57,347	—	11,469	866	69,682
Other commodities not listed.....	93,675	12,269	69,570	68,927	244,441



### Subsection 2.—Ports and Harbours

Water transportation cannot be studied with any degree of completeness without taking into consideration the co-ordination of land and water transportation at many of the ports. Facilities provided to enable interchange movements include the necessary docks and wharves, some for passenger traffic but most of them for freight, warehouses for handling general cargo, and special equipment for bulk freight of all kinds. Facilities may include cold storage warehouses, harbour railway and switching connections, grain elevators, coal bunkers, oil storage tanks and, in the chief harbours, vessel repair docks. In recent years, modern container terminals have been built at a number of Canadian ports to handle the increasing volume of containerized freight moving in international trade. These terminals represent large capital investments in property, specially designed gantry cranes, and associated materials-handling equipment.

In 1970, the Ministry of Transport formed the Canadian Marine Transportation Administration to co-ordinate all federal waterways and harbour services provided by the National Harbours Board, Harbour Commissions, and the public harbours and wharf facilities under the direct supervision of the Ministry. Nine of the principal harbours of Canada\* are administered by the National Harbours Board and 11 other major harbours are administered by Harbour Commissions, which include municipal as well as Federal Government appointees. In addition, there are some 300 public harbours under the direct supervision of the Ministry of Transport, administered under rules and regulations approved by the Governor General in Council. Harbour masters are appointed by the Minister of Transport for these harbours, their remuneration being paid from fees levied on vessels.

\*In March 1972 the Port of Prince Rupert B.C., became the tenth port to be administered by the NHB.



The container terminal within Burrard Inlet, Vancouver Harbour, became operative in 1970. More than 27,000,000 tons of cargo were handled by the facilities of the Port of Vancouver during that year.

Throughout the country there are several thousand wharves and breakwaters administered by the Ministry of Transport under the Government Harbours and Piers Act. These facilities are for the accommodation of cargo ships and commercial fishing craft and are under the general supervision of the Ministry of Transport regional and district offices. Wharfingers, whose remuneration is determined as a percentage of wharfage fees collected, are appointed for the direct supervision of these public wharves and floats. The wharves are designed to accommodate the smallest fishing or pleasure craft or the largest ocean-going vessels, according to local requirements. At many ports, in addition to public harbour works operated by the administering authority, there are extensive dock and handling facilities owned by private companies including railway, lumber, pulp and paper, coal, steel, iron ore, petroleum, grain, fish and other industries moving large volumes of bulk material. In 1970, Canadian harbours handled more than 291,000,000 tons of cargo in 211,000 vessel arrivals and departures in international seaborne and coastwise shipping.

**National Harbours Board.**—The National Harbours Board, a Crown corporation established in 1936, is charged with the administration and operation of the following properties:\* port facilities such as wharves and piers, transit sheds, grain elevators, cold storage warehouses, terminal railways, etc., at the harbours of St. John's (Nfld.), Halifax, Saint John (N.B.), Belledune (N.B.), Chicoutimi, Quebec, Trois-Rivières, Montreal, Churchill and Vancouver; grain elevators at Prescott and Port Colborne in Ontario; and the Jacques Cartier and Champlain Bridges at Montreal.

The capital values of the fixed assets administered by the Board at Dec. 31, 1970 amounted to \$413,587,062; this figure includes expenditure on all buildings, machinery and durable plant improvements less deductions for depreciation, and therefore represents a fair approximation of the present value of the properties. The total amount advanced by the Federal Government to the National Harbours Board for capital expenditure during 1970 was \$5,374,764, distributed as follows: Halifax, \$2,500,000; Quebec, \$800,000; Vancouver (Roberts Bank), \$518,683; and Vancouver (Burrard Inlet Crossing), \$1,556,081.

\*See footnote to p. 906.

#### 5.—Summary Traffic Statistics for Harbours Administered by the National Harbours Board, 1969 and 1970

Port or Elevator	Vessel Arrivals	Vessel Tonnage	Cargo Tonnage	Grain Elevator Shipments
	No.	No.	No.	bu.
St. John's, Nfld.....1969	1,964	1,992,937	879,793	...
1970	1,602	1,712,510	772,304	...
Halifax.....1969	2,995	6,713,657	10,553,997	15,572,825
1970	2,830	7,524,300	11,577,000	19,643,954
Saint John.....1969	1,687	4,272,844	6,282,729	13,039,236
1970	1,840	4,451,375	6,359,144	17,777,022
Belledune, N.B.....1969	21	104,907	229,616	...
1970	21	126,847	219,029	...
Chicoutimi.....1969	126	278,942	641,772	...
1970	140	300,703	616,735	...
Quebec.....1969	2,406	6,537,000	7,477,523 <sup>a</sup>	54,027,672
1970	2,085	6,601,000	8,859,884	72,812,802
Trois-Rivières.....1969	1,445	3,281,559	3,733,060	30,063,537
1970	1,273	3,900,631	5,364,914	65,401,699
Montreal.....1969	5,309	21,995,112	20,538,174	86,771,535
1970	5,456	23,419,542	25,047,299	158,338,703
Prescott.....1969	...	...	...	10,345,937
1970	...	...	...	10,744,075
Port Colborne.....1969	...	...	...	3,630,173
1970	...	...	...	5,642,978
Churchill.....1969	86	282,577	720,044	22,305,084
1970	64	323,199	804,111	25,249,903
Vancouver.....1969	19,105	21,283,905	23,080,469	162,292,838
1970	17,276	23,853,639	27,158,913	215,712,297
<b>Totals.....1969</b>	<b>35,144</b>	<b>66,743,440</b>	<b>74,137,177<sup>a</sup></b>	<b>398,048,837</b>
<b>1970</b>	<b>32,587</b>	<b>72,213,746</b>	<b>86,779,333</b>	<b>591,323,433</b>

## Subsection 3.—Canals

The canals and canalized waters of Canada under the jurisdiction of the Ministry of Transport, together with those under the jurisdiction of the St. Lawrence Seaway Authority, comprise a series of waterways providing navigation for 1,875 miles inland from salt water.

Those included under the two classifications—Seaway canals and Ministry of Transport canals—are listed in Table 6 with their locations, lengths and lock complement. In addition to these, the federal Department of Public Works administers the St. Andrew's Lock (length, width and draught, respectively, 215, 45 and 17 feet) on the Red River at Selkirk, Man., and the lock at Poupore, Que. A few small locks are operated by provincial authorities.

During 1970, 116,998,426 tons of freight and 19,834 vessels passed through the canals as compared with 97,357,234 tons of freight and 19,710 vessels during 1969. In addition to freight and passenger vessels, thousands of pleasure craft are locked through the canals. Vessels locking at Sault Ste. Marie during 1970 carried 205,588 passengers as compared with 192,891 in 1969.

**6.—Lengths of Channels and Dimensions of Locks under the Control of the  
St. Lawrence Seaway Authority or the Ministry of Transport**

Name	Location	Length of Channel	Locks			
			No.	Minimum Dimensions		
				Length	Width	Depth
		miles		ft.	ft.	ft.
<b>Seaway Canals<sup>1</sup></b>						
<b>Main Route—</b>						
South Shore.....	Montreal to Caughnawaga.....	20	2	766	80	30
Beaubarnois.....	Melocheville to Lake St. Francis....	15	2	766	80	30
Iroquois.....	Iroquois Point.....	1	1	766	80	30
Welland.....	Port Weller, Lake Ontario, to Port Colborne, Lake Erie.....	27.60	8	859	80	30
<b>Non-toll—</b>						
Lachine (not through canal).....	Montreal to Lachine.....	7.5	2	270	45	14
Sault Ste. Marie.....	St. Mary's Rapids, Sault Ste. Marie..	1.38	1	900	60	18.25
<b>Ministry of Transport Canals</b>						
<b>Atlantic Area—</b>						
Canso Canal.....	Canso Causeway, N.S.....	0.78	1	820	80	32
St. Peter's.....	St. Peter's Bay to Bras d'Or Lakes, Cape Breton, N.S.....	0.50	1	300	47.4	17
<b>Richelieu River—</b>						
St. Ours.....	St. Ours, Que.....	0.12	1	339	45	12
Chambly.....	Chambly to St. Jean, Que.....	11.76	9	125.1	23.3	6.5
<b>Ottawa and Rideau Rivers—</b>						
Ste. Anne.....	Junction of St. Lawrence and Ottawa Rivers.....	0.62	1	200	45	9
Carillon.....	Carillon Rapids, Ottawa River.....	0.50	1	200	45	9
Rideau.....	Ottawa to Kingston.....	123.53	47	134	33	5.5
	Rideau Lake to Perth (Tay Branch)..	6.12	2	134	33	5.5
<b>Lake Ontario to Georgian Bay—</b>						
Trent.....	Trenton to Peterborough lock, Peter- borough.....	88.74	18	175	33	8 <sup>2</sup>
	Peterborough lock to Big Chute.....	143.71	22	134	33	6
	Big Chute Marine Railway.....	—	—	—	—	4
	Big Chute to Port Severn.....	8.11	1	100	25	6

<sup>1</sup>For footnotes, see end of table.



### 6.—Lengths of Channels and Dimensions of Locks under the Control of the St. Lawrence Seaway Authority or the Ministry of Transport—concluded

Name	Location	Length of Channel	Locks			
			No.	Minimum Dimensions		
				Length	Width	Depth
		miles		ft.	ft.	ft.
<b>Ministry of Transport Canals—concluded</b>						
Lake Ontario to Georgian Bay—concluded						
Trent—concluded.....	Sturgeon Lake to Lindsay (Seugog Branch).....	10.00	1	142	33	6
	Lindsay to Port Perry (Seugog Branch).....	25.00	—	—	—	4.5
Murray.....	Isthmus of Murray, Bay of Quinte....	7.53	—	—	—	8.5 <sup>3</sup>

<sup>1</sup> Minimum depth of Seaway canals is 27 feet and minimum width 200 feet. Wiley-Dondero canal and two locks near Massena, N.Y., are in United States territory; dimensions are approximately the same as those of Canadian facilities. <sup>2</sup> Notice must be given by vessels of more than six-foot draught. <sup>3</sup> With Lake Ontario at elevation of 243 feet.

### 7.—Traffic through Canadian Canals, by Registry of Vessel, Navigation Seasons 1961-70

NOTE.—Figures include duplications where vessels pass through two or more canals.

Navigation Season	Canadian		United States		United Kingdom		Other	
	Vessels	Registered Tonnage	Vessels	Registered Tonnage	Vessels	Registered Tonnage	Vessels	Registered Tonnage
	No.	No.	No.	No.	No.	No.	No.	No.
1961.....	17,332	32,531,256	3,307	2,515,262	1,845	6,294,753	3,496	10,065,901
1962.....	13,836	31,677,612	3,524	4,045,470	1,938	6,679,909	3,538	11,017,809
1963.....	13,821	38,040,238	3,106	4,016,111	1,637	6,932,454	3,247	10,248,060
1964.....	14,256	40,025,355	2,906	5,461,310	2,043	9,494,484	3,950	13,176,847
1965.....	12,959	42,704,703	2,827	3,966,615	2,399	10,852,520	5,171	14,963,462
1966.....	15,151	53,019,538	2,553	3,971,446	1,470	6,270,454	4,292	16,875,582
1967.....	12,894	49,093,644	2,902	4,935,462	1,350	5,506,251	3,900	15,141,400
1968.....	13,084	52,826,261	2,305	4,274,677	1,170	4,962,991	3,819	17,321,245
1969.....	12,324	50,864,524	2,503	1,719,253	1,179	4,824,414	3,704	17,199,095
1970.....	12,873	59,139,317	2,426	1,361,479	996	4,196,221	3,539	16,711,116

### 8.—Freight Traffic through Canadian Canals, by Origin of Cargo, Navigation Seasons 1961-70

NOTE.—Figures include duplications where cargoes pass through two or more canals.

Navigation Season	Canada		United States		Britain		Other		Total
	Tons	P.C. of Total	Tons	P.C. of Total	Tons	P.C. of Total	Tons	P.C. of Total	Tons
1961.....	31,487,898	55.1	23,175,964	40.5	315,991	0.5	2,242,843	3.9	57,222,696
1962.....	33,972,361	53.4	26,228,794	41.3	805,851	1.3	2,561,305	4.0	63,568,291
1963.....	41,976,843	56.3	28,431,960	38.1	1,054,929	1.4	3,121,695	4.2	74,585,427
1964.....	56,298,982	60.3	31,488,638	33.8	1,089,385	1.2	4,399,845	4.7	93,276,850
1965.....	56,008,416	56.3	33,747,380	34.0	2,088,813	2.1	7,550,508	7.6	99,395,117
1966.....	66,478,706	60.1	34,146,570	30.8	1,256,946	1.1	8,820,312	8.0	110,702,534
1967.....	58,928,929	59.1	29,391,183	29.5	1,222,411	1.2	9,231,051	9.3	98,773,574
1968.....	80,025,640	55.5	33,824,186	31.2	1,834,432	1.7	12,590,112	11.6	108,274,370
1969.....	47,676,306	49.0	38,103,480	39.1	1,233,780	1.3	10,343,668	10.6	97,357,234
1970.....	65,703,013	56.2	40,529,281	34.6	1,005,283	0.9	9,760,849	8.3	116,998,426



### 9.—Tonnage of Products Carried by Canal, classified by Commodity Section,<sup>1</sup> Navigation Seasons 1969 and 1970

NOTE.—Figures include duplications where cargoes pass through two or more canals.

Year and Canal	Food, Feed, Beverages and Tobacco	Crude Materials, Inedible	Fabricated Materials, Inedible	End Products, Inedible	Miscel- laneous Freight	Domestic Package Freight	Total
	tons	tons	tons	tons	tons	tons	tons
<b>1969</b>							
Sault Ste. Marie.....	86,180	153,942	658,804	63	79,144	449,708	1,427,841
Welland.....	12,165,774	31,906,687	8,623,425	347,442	91,392	438,580	53,573,300
St. Lawrence River.....	11,586,737	18,056,952	10,332,986	455,327	194,865	440,499	41,067,366
Richelieu River.....	—	—	15,534	—	3,248	—	18,782
St. Peter's.....	894	—	—	10	50	—	954
Murray.....	—	—	—	30	—	—	30
Ottawa River.....	—	—	—	696	—	—	696
Rideau.....	—	—	—	—	—	—	—
Trent.....	—	—	—	62	—	—	62
St. Andrew's.....	1,043	—	854	—	168	—	2,065
Canso.....	258,034	88,190	876,818	520	42,576	—	1,266,138
<b>Totals, 1969.....</b>	<b>24,698,662</b>	<b>50,205,771</b>	<b>20,508,421</b>	<b>804,150</b>	<b>411,443</b>	<b>1,338,787</b>	<b>97,357,234</b>
<b>1970</b>							
Sault Ste. Marie.....	108,234	124,617	573,129	—	85,554	460,482	1,352,016
Welland.....	18,412,478	34,808,678	8,972,917	276,088	76,720	418,629	62,965,510
St. Lawrence River.....	17,737,227	21,590,670	10,958,219	356,572	158,332	395,566	51,196,586
Richelieu River.....	—	—	12,772	—	25	—	12,797
St. Peter's.....	388	—	—	—	3	—	391
Murray.....	—	—	—	67	—	—	67
Ottawa River.....	—	—	—	—	—	—	—
Rideau.....	—	—	—	—	—	—	—
Trent.....	—	—	53	—	—	—	53
St. Andrew's.....	736	—	636	65	154	—	1,591
Canso.....	184,415	167,213	1,073,392	2,843	41,552	—	1,469,415
<b>Totals, 1970.....</b>	<b>36,443,478</b>	<b>56,691,178</b>	<b>21,591,118</b>	<b>635,635</b>	<b>362,340</b>	<b>1,274,677</b>	<b>116,998,426</b>

<sup>1</sup> Standard commodity classification.

### 10.—Freight Traffic through Canadian Canals, by Direction and Origin, Navigation Season 1970

NOTE.—Figures include duplications where cargoes pass through two or more canals.

Canal	Traffic by Direction		Origins of Cargo			Total Cargo
	Up	Down	Canada	United States	Other Countries	
	tons	tons	tons	tons	tons	tons
Sault Ste. Marie.....	626,440	725,576	1,260,346	91,670	—	1,352,016
Welland.....	21,161,037	41,804,473	31,353,818	26,886,171	4,725,521	62,965,510
St. Lawrence River.....	25,247,272	25,949,314	31,732,107	13,462,950	6,001,529	51,196,586
Richelieu River.....	8,534	4,263	12,772	25	—	12,797
St. Peter's.....	68	323	391	—	—	391
Murray.....	37	30	67	—	—	67
Ottawa River.....	—	—	—	—	—	—
Rideau.....	—	—	—	—	—	—
Trent.....	35	18	53	—	—	53
St. Andrew's.....	138	1,453	1,591	—	—	1,591
Canso.....	985,429	483,986	1,340,608	87,865	40,942	1,469,415
<b>Totals.....</b>	<b>45,025,990</b>	<b>68,969,436</b>	<b>65,701,753</b>	<b>40,523,681</b>	<b>10,767,992</b>	<b>116,998,426</b>

# 11.—St. Lawrence-Great Lakes Traffic using St. Lawrence, Welland and Sault Ste. Marie Canals, 1969 and 1970

NOTE.—Duplications eliminated wherever possible.

Canals Used	1969			1970		
	Upbound Freight	Downbound Freight	Total	Upbound Freight	Downbound Freight	Total
	tons	tons	tons	tons	tons	tons
<b>Traffic using Canadian St. Lawrence-Great Lakes System.....</b>	<b>25,811,178</b>	<b>36,149,056</b>	<b>61,960,234</b>	<b>28,382,782</b>	<b>43,891,890</b>	<b>72,274,672</b>
St. Lawrence only.....	6,024,660	1,361,123	7,385,783	6,812,245	1,546,522	8,358,767
St. Lawrence and Welland.....	16,430,008	17,197,411	33,627,419	18,425,930	24,378,135	42,804,065
St. Lawrence, Welland and Sault Ste. Marie.....	10,241	43,923	54,164	9,097	24,657	33,754
Welland only.....	2,696,754	16,822,437	19,519,191	2,518,167	17,241,657	19,759,824
Welland and Sault Ste. Marie.....	225,871	147,994	373,865	207,843	160,024	367,867
Sault Ste. Marie.....	423,644	576,168	999,812	409,500	540,895	950,395
<b>Traffic using United States Locks at Sault Ste. Marie.....</b>	<b>9,734,294</b>	<b>87,344,852</b>	<b>97,079,146</b>	<b>9,821,462</b>	<b>90,229,158</b>	<b>100,050,620</b>
<b>Totals.....</b>	<b>35,545,472</b>	<b>123,493,908</b>	<b>159,039,380</b>	<b>38,204,244</b>	<b>134,121,048</b>	<b>172,325,292</b>

Cargo passing through the Canadian lock and the United States locks at Sault Ste. Marie during 1970 totalled 101,402,636 tons—more than the 98,506,987 tons during the 1969 season but appreciably less than the record 128,489,170 tons reported for 1953. The United States locks, because of their larger facilities, accounted for all but 1,352,016 tons of the total. Iron ore, grains and coal normally contribute more than 90 p.c. of the combined tonnage moving through the Canadian and United States locks, most of it downbound. Because upbound transits are often in ballast, the 1970 upbound cargo accounted for only 10,447,902 tons of the total and consisted mainly of coal, gravel, liquid fuels and manufactured goods. Iron ore mines contributed 69,422,152 tons or 68.5 p.c. of the total 1970 traffic as against 74,583,888 tons in 1969, and wheat shipments were 11,498,279 tons as against 7,960,799 tons in the same comparison. A relatively small volume of wheat moves directly overseas—most of it is carried by the laker fleet to elevators along the St. Lawrence River to await trans-shipment to ocean-going vessels. Bituminous coal recorded an increase in 1970 to 6,721,114 tons from 6,571,324 tons in 1969.

**Canadian Use of the Panama Canal.**—The use of the Panama Canal as a transport facility for the movement of goods from one Canadian port to another is of relatively minor importance. Of the total of 5,814,557 long tons of cargo leaving the West Coast of Canada in the year ended June 30, 1970 and passing through the Panama Canal, none were destined for eastern Canadian ports. Similarly, of the 1,727,958 long tons of cargo leaving eastern Canadian ports and passing through the Panama Canal, none were destined for western Canadian ports. The total tonnage passing through the Panama Canal and arriving in Canadian West Coast ports from any origin, Canada or elsewhere, amounted to 1,203,718 long tons in the year ended June 30, 1970; the total from any origin arriving at eastern Canadian ports after having passed through the Panama Canal was 759,483 long tons.

#### Subsection 4.—The St. Lawrence Seaway

Events leading up to the beginning of the St. Lawrence Seaway project and the progress made during the years of its construction are covered in the 1954 to 1959 Year Books. The 1956 edition (pp. 821-829) gives detailed information on Great Lakes-St. Lawrence waterway traffic immediately prior to the beginning of construction on the project and the 1960 Year Book (pp. 851-860) relates the story of the Seaway during the second year of its operation. The first decade of Seaway development and operations is discussed in the 1969 edition (pp. 841-845).

The St. Lawrence Seaway Authority, constituted as a Corporation by Act of Parliament in 1951 (RSC 1970, c. S-1), undertook the construction (and subsequent maintenance and operation) of Canadian facilities between Montreal and Lake Erie to allow 27-foot navigation, concurrently with the construction of similar facilities in the International Rapids Section of the St. Lawrence River by the Saint Lawrence Seaway Development Corporation of the United States. The Seaway was opened to commercial traffic on Apr. 1, 1959 and officially opened on June 26, 1959. With the opening of the Seaway, certain ancillary canals were transferred to the jurisdiction of the St. Lawrence Seaway Authority for operation and maintenance purposes. These include the Lachine, a section of the Cornwall Canal, a portion of the third Welland Canal and the Canadian lock at Sault Ste. Marie. Tolls are not assessed against vessel movements on these waterways and traffic data for them are not included in this Subsection. Major construction undertaken in 1967 was on the channel to bypass the city of Welland, scheduled for completion by the navigation season of 1973.



Construction of the 8.5-mile Welland bypass channel, which will replace the narrow winding section that bisects the city of Welland, will be completed by the opening of the 1973 navigation season.

Seaway Traffic.—Tables 12 and 13 give combined traffic statistics of the St. Lawrence and Welland Canals for the years 1969 and 1970. Duplicate transits are eliminated so that the figures show the actual total movement of goods through the St. Lawrence Seaway.

### 12.—Summary Statistics of St. Lawrence Seaway Traffic, 1969 and 1970

(Combined traffic of the Montreal-Lake Ontario Section and the Welland Canal, with duplications eliminated)

Item	Upbound				Downbound			
	1969		1970		1969		1970	
	No. of Transits	Cargo Tons	No. of Transits	Cargo Tons	No. of Transits	Cargo Tons	No. of Transits	Cargo Tons
<b>Type of Vessel</b>								
Ocean—								
Cargo.....	1,121	5,854,794	997	5,406,133	1,130	7,877,021	1,022	7,974,311
Tanker.....	80	736,166	77	590,172	86	277,420	74	321,529
Inland—								
Cargo.....	2,007	15,021,395	2,182	17,826,587	2,009	25,882,532	2,166	33,656,805
Tug and barge.....	35	8,604	48	56,220	37	67,612	54	99,927
Tanker.....	680	2,959,811	710	3,478,381	681	860,321	728	807,253
Coastal—								
Cargo.....	76	358,955	63	260,753	85	313,644	63	260,386
Tug and barge.....	90	189,679	67	144,474	98	217,834	57	124,857
Tanker.....	19	185,070	14	101,698	14	5,134	7	4,186
Non-cargo—								
Tug and barge.....	122	—	96	—	75	—	89	—
All other <sup>1</sup> .....	306	—	288	—	343	—	313	—
<b>Totals.....</b>	<b>4,536</b>	<b>25,314,474</b>	<b>4,542</b>	<b>27,864,418</b>	<b>4,558</b>	<b>35,501,518</b>	<b>4,573</b>	<b>43,249,254</b>
<b>Type of Cargo</b>								
Bulk.....	1,891	19,693,222	2,002	22,628,877	2,475	32,731,680	2,787	40,643,347
General.....	808	4,778,622	717	4,621,019	211	1,001,418	197	997,439
Mixed.....	288	842,630	213	614,522	473	1,768,420	363	1,608,468
Passengers.....	104	—	83	—	103	—	82	—
In Ballast—								
Ocean.....	112	—	144	—	102	—	78	—
Laker.....	980	—	1,063	—	827	—	713	—
Coastal.....	33	—	19	—	57	—	33	—
Other.....	320	—	301	—	310	—	320	—
<b>Type of Traffic</b>								
Domestic—								
Canada to Canada.....	1,455	5,980,119	1,536	7,326,601	1,628	8,902,123	1,866	15,000,107
Canada to United States.....	1,494	12,364,839	1,573	14,217,606	16	3,617	9	22,356
United States to Canada.....	18	104,799	13	42,455	1,304	17,856,575	1,243	19,278,581
United States to United States.....	368	273,757	345	281,451	391	584,762	358	652,370
Foreign—								
Canada—								
Import.....	266	1,023,764	211	813,677	—	—	—	—
Export.....	—	—	—	—	292	740,254	259	1,149,468
United States—								
Import.....	935	5,567,196	864	5,182,628	—	—	—	—
Export.....	—	—	—	—	927	7,414,187	838	7,146,372

<sup>1</sup> Includes naval vessels.



## 13.—St. Lawrence Seaway Traffic classified by Type of Cargo, 1968-70

(Combined traffic of the Montreal-Lake Ontario Section and the Welland Canal, with duplications eliminated)

Commodity	1968		1969		1970	
	Cargo Tons	P.C. of Total	Cargo Tons	P.C. of Total	Cargo Tons	P.C. of Total
<b>Agricultural Products</b>	<b>14,958,798</b>	<b>22.5</b>	<b>14,236,468</b>	<b>23.4</b>	<b>21,634,429</b>	<b>30.4</b>
Wheat	7,146,996	10.8	5,568,614	9.2	8,962,084	12.6
Corn	3,414,333	5.1	3,608,498	5.9	3,052,532	4.3
Rye	103,501	0.1	72,794	0.1	54,904	0.1
Oats	299,778	0.5	268,477	0.4	581,505	0.8
Barley	711,936	1.1	964,413	1.6	4,248,797	6.0
Flour, wheat	117,538	0.2	137,590	0.2	93,912	0.1
Flour, edible, other	9,003	--	8,682	--	1,985	--
Soybeans	1,717,384	2.6	2,129,722	3.5	2,985,304	4.2
Soybean oil, cake and meal	187,631	0.3	213,747	0.4	258,715	0.4
Beans and peas	98,086	0.1	96,758	0.2	34,985	--
Malt	97,550	0.1	79,695	0.1	67,027	0.1
Flaxseed	353,970	0.5	435,952	0.7	407,554	0.6
Other agricultural products	701,092	1.1	651,526	1.1	885,125	1.2
<b>Animal Products</b>	<b>366,488</b>	<b>0.6</b>	<b>347,422</b>	<b>0.6</b>	<b>370,283</b>	<b>0.5</b>
Packing house products, edible	68,478	0.1	79,156	0.1	99,702	0.1
Hides, skins and pelts	82,928	0.1	100,768	0.2	76,450	0.1
Other animal products	215,082	0.4	167,498	0.3	194,131	0.3
<b>Mineral Products</b>	<b>36,028,416</b>	<b>54.3</b>	<b>30,367,581</b>	<b>49.9</b>	<b>33,579,952</b>	<b>47.3</b>
Bituminous coal	10,586,944	15.9	11,043,334	18.2	10,714,635	15.1
Coke	347,031	0.5	392,780	0.6	534,107	0.8
Iron ore	21,315,386	32.1	15,300,264	25.2	18,872,454	26.5
Aluminum ore and concentrates	100,651	0.2	142,408	0.2	146,674	0.2
Clay and bentonite	253,422	0.4	245,489	0.4	310,015	0.4
Gravel and sand	61,599	0.1	105,904	0.2	127,848	0.2
Stone, ground or crushed	1,486,626	2.2	1,321,273	2.2	981,546	1.4
Stone, rough	16,309	--	3,530	--	2,053	--
Petroleum, crude	122,361	0.2	102,130	0.2	56,054	0.1
Salt	1,038,957	1.6	821,358	1.3	1,083,634	1.5
Phosphate rock	—	—	—	—	—	—
Sulphur	—	—	—	—	—	—
Other mineral products	699,130	1.1	889,111	1.4	750,932	1.1
<b>Forest Products</b>	<b>422,327</b>	<b>0.6</b>	<b>355,346</b>	<b>0.6</b>	<b>287,082</b>	<b>0.4</b>
Pulpwood	291,102	0.4	199,958	0.3	147,185	0.2
Other forest products	131,225	0.2	155,388	0.3	139,897	0.2
<b>Manufactures and Miscellaneous</b>	<b>13,734,509</b>	<b>20.7</b>	<b>14,659,404</b>	<b>24.1</b>	<b>14,429,132</b>	<b>20.3</b>
Gasoline	563,515	0.8	762,923	1.3	708,050	1.0
Fuel oil	2,905,935	4.4	3,357,422	5.6	3,811,127	5.4
Lubricating oils and greases	141,745	0.2	126,210	0.2	93,411	0.1
Petroleum products, other	135,006	0.2	71,205	0.1	74,686	0.1
Rubber, crude, natural and synthetic	166,719	0.3	170,349	0.3	138,233	0.2
Chemicals	310,433	0.5	406,075	0.7	376,186	0.5
Sodium products	109,505	0.2	170,396	0.3	156,888	0.2
Tar, pitch and creosote	138,737	0.2	176,060	0.3	128,615	0.2
Pig iron	259,316	0.4	248,936	0.4	311,264	0.4
Iron and steel, bars, rods, slabs	131,027	0.2	75,827	0.1	308,661	0.4
Iron and steel, nails, wire	164,177	0.2	138,745	0.2	138,371	0.2
Iron and steel, manufactured	5,191,857	7.8	4,268,408	7.0	3,996,112	5.6
Machinery and machines	136,326	0.2	96,471	0.2	80,122	0.1
Cement	40,376	0.1	146,027	0.2	231,250	0.3
Wood pulp	62,317	0.1	38,848	0.1	61,459	0.1
Newsprint	356,868	0.5	322,080	0.5	272,668	0.4
Syrup and molasses	143,168	0.2	131,314	0.2	110,237	0.2
Sugar	184,815	0.3	206,815	0.3	223,723	0.3
Food products	364,016	0.5	309,287	0.5	246,823	0.4
Scrap iron and steel	436,348	0.7	1,353,857	2.2	986,506	1.4
Other manufactures and miscellaneous	1,792,303	2.7	2,082,149	3.4	1,974,740	2.8
<b>Package Freight</b>	<b>891,032</b>	<b>1.3</b>	<b>849,771</b>	<b>1.4</b>	<b>812,794</b>	<b>1.1</b>
Package freight—domestic	868,286	1.3	827,125	1.4	784,626	1.1
Package freight—foreign	22,746	--	22,646	--	28,168	--
<b>Totals</b>	<b>66,401,570</b>	<b>100.0</b>	<b>60,815,992</b>	<b>100.0</b>	<b>71,113,672</b>	<b>100.0</b>

In 1970, 4,542 ships carrying about 27,864,000 tons of cargo moved upbound through the Seaway and 4,573 vessels carrying 43,249,000 tons moved downbound. Ocean-going ships carried 20.1 p.c. of the total cargoes and lakers 79.9 p.c. Of the total tonnage carried upbound in 1970, 21,868,000 tons were domestic cargo and 5,996,000 tons were foreign traffic; downbound, 34,953,000 tons were domestic freight and 8,296,000 tons were carried to and from foreign ports.

On the Montreal-Lake Ontario section, upbound traffic amounted to 25,213,000 tons in 1970 and downbound traffic to 25,930,000 tons, an increase of 24.7 p.c. over 1969. Almost 58.7 p.c. of the former was accounted for by iron ore shipped from St. Lawrence ports to Hamilton and Lake Erie, and the latter consisted largely of overseas shipments of wheat. There were 79 fewer upbound transits and 36 fewer downbound transits in 1970 than in 1969, indicating a slight decrease in the number of vessels using this portion of the Seaway. Bulk cargo comprised 87.2 p.c. of the total traffic through the section in 1970, the principal commodities through the St. Lawrence canals being iron ore, wheat, barley, manufactured iron and steel, fuel oil and corn. Traffic patterns show that 33.1 p.c. of the total movement was between Canadian ports; 38.6 p.c. moved between Canadian and United States ports; and 28.0 p.c. consisted of foreign trade to and from Canada and the United States. The small remainder was traffic between ports in the United States.

There were 7,111 transits through the Welland Canal in 1970, with a cargo volume of 21,143,000 tons upbound and 41,726,000 tons downbound; bulk cargo accounted for 90.7 p.c. of the traffic. Although many vessels pass through both the St. Lawrence and Welland Canals on "through" trips, there is a substantial amount of local traffic between Great Lakes ports which involves only the Welland Canal. These movements are largely of iron ore, grain and coal. The Welland Canal traffic was 9,337,000 cargo tons greater than that reported for the Montreal-Lake Ontario section.

Income of the St. Lawrence Seaway Authority for 1970 amounted to \$24,700,033, comprising toll revenue of \$22,143,453 assessed for transits through the Seaway locks between Montreal and Lake Ontario and sundry revenues (rentals, wharfage, bridge revenue, etc.) of \$2,556,580. Total expenses for 1970 amounted to \$19,364,505 of which operation and maintenance expenses amounted to \$13,198,278, regional headquarters, headquarters administration and engineering expenses to \$5,370,708, and construction to \$795,519.

#### 14.—St. Lawrence Seaway Authority Expenditures, 1966-70

Item	1966	1967	1968	1969	1970
	\$	\$	\$	\$	\$
Administration—					
Headquarters.....	1,272,775	1,583,978	1,850,183	2,235,904	2,551,695
Regional.....	1,420,065	1,565,116	1,212,996	1,402,586	1,501,618
Engineering.....	538,406	788,132	1,171,734	1,160,361	1,317,395
Construction Branch.....	—	197,564	703,219	815,388	795,519
Operation and Maintenance—					
Salaries and wages.....	5,883,554	6,132,316	6,228,868	6,924,685	7,767,649
Employee benefits.....	632,612	703,651	659,806	781,397	940,673
Maintenance materials and services.....	4,704,574	3,420,826	3,765,857	3,018,200	3,153,902
Grants in lieu of municipal taxes....	488,664	530,695	597,697	684,466	719,044
Other operation and maintenance expenses.....	551,475	319,857	552,974	521,159	617,010
<b>Totals.....</b>	<b>15,498,125</b>	<b>15,242,135</b>	<b>16,743,334</b>	<b>17,544,146</b>	<b>19,364,505</b>

## Section 2.—Marine Services of the Federal Government

The Marine Services of the Ministry of Transport consists of four operational Branches—Marine Works, Marine Operations, Marine Regulations and Marine Hydraulics—and two service Branches—Marine Finance and Marine Personnel. Each Branch is headed by a Director responsible to the Deputy Administrator, Marine Services, Canadian Marine Transportation Administration.

The *Marine Works Branch* responsibilities include provision and maintenance of aids to navigation, maintenance and management of Canada's secondary canals, administration of public harbours and wharves, and general supervision of harbour commissions. The Branch is also responsible for the removal of wrecks, and the investigation and subsequent approval of all works placed in, on, over or under the waters of Canada for the protection of navigation. It has three Divisions—Aids to Navigation, Canals, and Harbours and Property.

The *Marine Regulations Branch*, with two Divisions—Steamship Inspection and Nautical and Pilotage—is responsible for the administration of those parts of the Canada Shipping Act that relate to the operations of Canadian ships and ships within Canadian waters. It is charged with the registry and licensing of ships, the certification of ships' officers and the engagement and discharge of ships' crews. Other responsibilities include pilotage, safety inspection of ships, handling of dangerous cargoes, prevention of oil pollution of Canadian waterways and air pollution by ships, and the investigation of marine accidents. It is also responsible for the co-ordination of Canada's participation in the Inter-Governmental Maritime Consultative Organization, a United Nations body charged with the promotion of marine safety on an international basis.

The *Marine Operations Branch* is responsible for operating the Ministry fleet—the Canadian Coast Guard—consisting of 88 active ships of various types including heavy, medium and light icebreakers, an icebreaking cable repair ship, and two weather-oceanographic ships which alternate in manning Pacific Weather Station "Papa", 900 miles west of Victoria, B.C.

A principal duty of the fleet is to install, service and supply the thousands of light stations, shore lights, buoys and other aids to navigation along Canada's coasts and inland waterways. Coast Guard ships, including icebreakers, take part each summer in the Ministry's Arctic re-supply operations, moving some 100,000 tons of cargo to more than 40 ports of call in the Far North. These ships work in conjunction with a number of chartered commercial vessels which carry most of the cargo. During the winter, the icebreakers operate in support of commercial shipping in the Gulf of St. Lawrence from Cabot Strait to the Quebec North Shore. They also operate in the St. Lawrence River to break ice jams and prevent flooding, particularly in the section between Trois-Rivières and Montreal.

The Coast Guard ships assist with projects of other Canadian Government departments. For instance, scientific programs are carried out by research teams based aboard various ships ranging from the Great Lakes to the High Arctic in such fields as oceanography, hydrography and related sciences; departments concerned with the development of the Canadian Arctic and with the welfare of its population carry out their undertakings with the aid of Coast Guard ships; and Coast Guard ships patrol the St. Lawrence ship channel to ensure that it is maintained at its advertised depth. The bulk of marine search and rescue is carried out by Coast Guard ships. At present, seven offshore patrol cutters, three Great Lakes patrol cutters, six lifeboats, six launches and one hovercraft are engaged in this mission.

To provide officers for its ships, trained in Coast Guard work, the Coast Guard College was established near North Sydney, N.S.

The *Marine Hydraulics Branch* comprises three Divisions—Hydraulics Studies, St. Lawrence Ship Channel, and Marine Traffic Control. The Hydraulics Studies Division

carries out and integrates hydraulic engineering studies, research, standards, planning and programming related to marine transportation facilities for commercial shipping in waterways where the Ministry has responsibilities. These activities, which are related mainly to the St. Lawrence River below Montreal, involve extensive use of hydraulic models during the development engineering phase of the program. The Division also provides technical advice and engineering assistance to Senior Management, and other agencies and departments in matters relating to marine transportation, water resources management and boundary waters investigations.

The St. Lawrence Ship Channel Division, located in Montreal, has the function of operating, dredging and maintaining navigation channels in the St. Lawrence River below Montreal and in the Saguenay River. The St. Lawrence ship channel extends from about 40 miles below Quebec City to Montreal, a distance of 200 miles; about 130 miles of this distance is dredged channel. In the Montreal-Quebec Reach, the channel has a limiting depth of 35 feet at extreme low water and a minimum width of 800 feet. Below Quebec, limiting depth of the dredged channel, about 15 miles in length, is 30 feet at low tide, with a width of 1,000 feet. This restricted depth section is now being deepened to provide 41 feet at low tide to allow access of large, deep-draught ships in the 100,000-ton class to the Port of Quebec. The three-year dredging contract, awarded in 1971, requires the removal of about 14,000,000 cubic yards of material at a cost of \$21,000,000.

In the interests of St. Lawrence River traffic safety, a Marine Traffic Control Service was established on Apr. 3, 1967, as a result of studies initiated by the Ministry in 1964. Using very high frequency (VHF) radio equipment, the Service keeps track of ship traffic in much the same way as the air traffic controllers watch over the busy sky lanes, aided by a computer which automatically portrays the ships moving along a wall display. The information needed to assist ships' masters in the safe conduct of their vessels comes from two main traffic control centres—one at Quebec and the other at Montreal—six shore stations and 18 reporting points along the river between Montreal and Les Escoumins, Que. All ships navigating the river must be equipped with the required VHF equipment to take advantage of the service. Since its inception, the system has been extended to Sept Îles and includes the waters of the Saguenay River to Chicoutimi.

**Field Organization.**—In the field, a regional management organization within the Marine Services is being developed. This system will provide the Ministry with more efficient means of matching resources to workloads in all areas. Included in the completed system will be the 11 district marine agencies that have existed for many years, and some 15 other Marine Services field offices that in the past have been reporting individually to Marine Services directors or to the Administrator, Canadian Marine Transportation Administration.

The first step was completed in 1967 with the establishment of the Maritime Region. This covers the Maritime Provinces and their outlying islands including Sable Island and the Magdalen Islands, and embraces all Marine Works, Marine Operations and Marine Regulations activities in the three provinces. In 1968, the Western Region, including the Pacific Coast, western and northwestern Canadian waterways and the western Arctic, was established with the same responsibilities as the Maritime Region. Later, the Province of Newfoundland (and Labrador) was reorganized using an area concept with Marine Works, Marine Operations, and Marine Regulations activities for the province reporting through an Area Manager located at St. John's. The Laurentian Region will be established early in 1972.

**Aids to Navigation.**—The Canadian system of aids to navigation is similar to that of other North American countries. Such aids maintained by the Ministry of Transport for Canadian and contiguous waters consist of buoys, lighthouses, day beacons, radio



beacons and two electronic networks operating on the hyperbolic principle—Loran and Decca. The numbers of danger signals maintained during the years ended Mar. 31, 1969 and 1970 were:—

<i>Type of Aid</i>	1968-69	1969-70
	No.	No.
Lights.....	3,853	3,950
Fog signals.....	384	384
Lighted buoys.....	2,300	2,325
Unlighted buoys and beacons.....	15,842	15,594

All aids incorporating light or sound devices are listed in the Ministry of Transport annual publication *List of Lights and Fog Signals*. Information on the radio beacons and on Loran and Decca is published in *Radio Aids to Marine Navigation*.

**Steamship Inspection.**—The Steamship Inspection Service was established by authority of the Canada Shipping Act. Its functions include the formulation and subsequent enforcement of regulations concerned with the approval of design of hulls, machinery and equipment of ships; inspection during construction; periodic inspection and issuance of inspection certificates; the assignment of load lines; the conditions under which dangerous goods may be carried in ships; the protection against accident of workers employed in loading and unloading ships; the protection from pollution of Canadian territorial waters by oil, chemicals, garbage, sewage or any other substances from ships; control of pollution of the atmosphere by smoke emitted by ships; control of the powering, equipment, load and horse-power capacity of small vessels; and the certification of marine engineers. The Board also prepares correspondence courses in marine engineering for use in Marine Engineering Schools now controlled by the Department of Labour.

The Chairman and the Board of Steamship Inspection are located at Ottawa and field offices are maintained in the principal ocean and inland ports. A total of 1,771 vessels of Canadian ownership or registry, including 446 passenger ships, 107 new ships built in Canada, 11 ships built outside Canada for registry in Canada, and 18 converted or reconditioned ships were inspected during the year ended Mar. 31, 1970.

**Pilotage.**—Pilotage service functions under the provisions of Part VI and Part VIA of the Canada Shipping Act. Wherever a pilotage district has been created by the Governor in Council, qualified pilots are licensed by the pilotage authority of the district. There are in Canada 24 pilotage districts, in eight of which the Minister of Transport is the pilotage authority (see Table 15); in each of the other districts the authority is a local body appointed by the Governor in Council. There are also three districts that are administered jointly by Canada and the United States, and one area in which the Ministry of Transport provides qualified pilots.

15.—Pilotage Service, by Pilotage District, 1969 and 1970

District	1969		1970	
	Pilotage Trips	Net Registered Tonnage	Pilotage Trips	Net Registered Tonnage
	No.		No.	
Sydney, Cape Breton, N.S.....	818	3,311,779	971	3,446,531
Halifax, N.S.....	4,246	13,393,304	3,950	15,692,322
Saint John, N.B.....	1,540	6,108,663	1,344	6,295,105
Quebec, Que.....	8,022	46,698,952	8,783	54,412,167
Montreal, Que.....	9,049	48,426,568	9,622	56,171,248
Cornwall, Ont.....	2,817	12,160,811	2,552	11,658,266
Churchill, Man.....	131	520,903	104	623,394
British Columbia.....	6,742	41,377,751	8,304	53,247,666
<b>Totals.....</b>	<b>33,365</b>	<b>171,998,731</b>	<b>35,630</b>	<b>201,546,699</b>

## PART IV.—CIVIL AIR TRANSPORT

### Section 1.—Civil Aviation Administration and Policy

**Administration.**—Civil aviation in Canada is under the jurisdiction of the Federal Government and is administered under the authority of the Aeronautics Act and the National Transportation Act and amendments thereto. The Aeronautics Act is in three parts. Broadly speaking, Part I deals with the technical side of civil aviation comprising matters of registration of aircraft, licensing of airmen, the establishment and maintenance of airports and facilities for air navigation, air traffic control, accident investigation and the safe operation of aircraft. This Part of the Act is administered by the Director General, Civil Aeronautics, under the supervision of the Administrator, Canadian Air Transportation Administration, Ministry of Transport. Part II of the Act deals with the economic aspects of commercial air services and assigns to the Canadian Transport Commission certain regulatory functions of commercial air services (see p. 942). Part III deals with matters of government internal administration in connection with the Act.

**International Air Agreements.**—The position of Canada in the field of aviation as well as its geographical location makes imperative its co-operation with other nations of the world engaged in international civil aviation. Canada therefore took a major part in the original discussions that led to the establishment of the International Civil Aviation Organization (ICAO) which has headquarters at Montreal, Que. In 1971, Canada had air agreements with 26 other countries. In August of that year, Germany abrogated the air agreement with Canada, with termination to take effect in 12 months. However, air services continue to be operated by Air Canada and Lufthansa.

**Federal Civil Aviation Policy.**—The intent of Federal Government concern in civil aviation is to provide an efficient and stable service for the Canadian public and the best possible economic framework for the orderly development of commercial aviation. In formulating its aviation policy in 1964, three principles were accepted by the Government as basic. The first related to the international field and stated that air services provided by Canadian airlines should serve the Canadian interest as a whole; that these services should not be competitive or conflicting but should represent a single integrated plan which could be achieved by amalgamation, by partnership or by a clear division of fields of operations. By a further policy statement in June 1965, the Minister of Transport defined more precisely the respective areas of operation of Air Canada and Canadian Pacific Air Lines Limited (CP Air) and additional international air services have since been introduced consistent with Government policy.

The second principle concerned the domestic mainline services and stated that, although competition was not to be rejected, development of competition should not compromise or seriously injure the economic viability of Air Canada's domestic operations which represent the essential framework of its network of domestic services, and in the event that competition continues, opportunity should be ensured for growth to both lines above this basic minimum. In accordance with this principle, the Government authorized the Canadian Transport Commission to permit CP Air to operate additional transeontinental air services, and to serve Calgary, Edmonton and Ottawa in addition to Vancouver, Winnipeg, Toronto and Montreal which were already being served.

The third principle concerned the role of regional air carriers providing scheduled service and their relationship with the mainline carriers. Recommendations were prepared by the two major airlines and the larger regional carriers which resulted in a "Statement of Principles for Regional Air Carriers" tabled in the House of Commons on Oct. 20, 1966, by the Minister of Transport. These principles are summarized as follows:—

- (1) Regional carriers will provide regular route operations into the North and will operate local or regional routes to supplement the domestic mainline operations of Air Canada and CP Air; they will be limited to a regional role.

- (2) Greater scope will be allowed regional carriers in the development of routes and services by the following means: (a) where appropriate, limited competition on mainline route segments of Air Canada or CP Air may be permitted to regional carriers if this is consistent with their local route development; (b) in a few cases, secondary routes at present operated by Air Canada and CP Air may become eligible for transfer to regional carriers; and (c) a larger role will be allotted to regional carriers in connection with the development of domestic and international charter services, inclusive tours and new types of services.
- (3) Greater co-operation between the mainline carriers and the regional carriers will be developed in a variety of fields, ranging from technical and servicing arrangements to joint fare arrangements.
- (4) A limited policy of temporary subsidies for regional routes will be introduced, to be based upon a "use it or lose it" formula.
- (5) Firmer control will be exercised over the financial structure of regional carriers in connection with new licensing arrangements.
- (6) Regional carriers will be assisted with the acquisition of aircraft by development of a scheme for consultation between government and the carriers regarding plans for new aircraft, and by a special investigation designed to explore the possibility of developing a joint approach to this problem on the part of the carriers.

In a statement made on Aug. 15, 1969, the Minister of Transport defined more precisely the regions in which each of the five regional carriers would be permitted to supplement or authorized to replace mainline operations as circumstances warranted, and authorized the Canadian Transport Commission, in consultation with the mainline carriers and appropriate regional carriers, to give urgent consideration to the application of the regional policy. During 1969, the Air Transport Committee issued a number of decisions authorizing new services by regional air carriers in accordance with the Regional Air Policy, and the Committee is continuing an orderly application of this policy in consultation with the mainline and regional carriers, and in accordance with the procedures of the Canadian Transport Commission.

Thus, in the international field, the joint approach to the provision of world-wide service by the two major Canadian carriers is intended to strengthen their position in a very competitive field and provide a better over-all service to the travelling public. In the domestic field, a degree of competition remains to provide the public with the advantages that can result from a competitive atmosphere but avoids excesses of competition that could be ruinous to the operators and unsatisfactory to the public.

## Section 2.—Current Air Services

The Canadian flag carriers operating international and domestic air routes are Air Canada and CP Air, which together earn 77 p.c. of the total operating revenues of Canadian commercial air carriers. The five regional carriers (Eastern Provincial Airways, Nordair, Quebecair, Pacific Western Airlines and TransAir) earn 12 p.c. of the total operating revenues. The remaining 11 p.c. is earned by some 500 smaller airlines, many of them operating in Canada's hinterland which is relatively inaccessible by surface transport. On international routes, the Canadian flag carriers provide scheduled services to Europe, the Soviet Union, Asia Minor, Japan and Hong Kong, Central and South America, the Caribbean, Australia and the United States (including Hawaii). Thirty-two foreign airlines have scheduled services between Canada and other countries (see pp. 925-926).

The Canadian Transport Commission (Air Transport Committee) in its Directory of Canadian Commercial Air Services classifies commercial air carriers into two major groups—domestic and international—and divides these groups into nine classes:—

### DOMESTIC AIR CARRIERS—

- (1) *Scheduled Air Carriers*—which offer public transportation of persons, mails and/or goods by aircraft, serving designated points in accordance with a service schedule and at a toll per unit;
- (2) *Regular Specific Point Air Carriers*—which offer public transportation of persons, mails and/or goods by aircraft serving designated points on a route pattern and with some degree of regularity, at a toll per unit;



**DOMESTIC AIR CARRIERS—concluded**

- (3) *Irregular Specific Point Air Carriers*—which offer public transportation of persons, mails and/or goods by aircraft, from a base named in the licence, serving a specific point or points, at a toll per unit;
- (4) *Charter Air Carriers*—which offer public transportation of persons and/or goods by aircraft, from a base named in the licence, at a toll per mile or per hour for the charter of the entire aircraft, or at such other tolls as may be permitted by the Air Transport Committee;
- (5) *Contract Air Carriers*—which do not offer public transportation but which transport persons and/or goods solely in accordance with one or more specific contracts;
- (6) *Flying Clubs*—which are air carriers incorporated as non-profit organizations for the purpose of furnishing flying training and recreational flying to club members;
- (7) *Specialty Air Carriers*—which operate for purposes not provided for by any other class such as aerial photography and survey, aerial distribution (crop dusting, pest control, seeding), aerial inspection, reconnaissance and advertising (forest, fire patrol, pipelines), aerial control (fire, water-bombing), aerial construction, and air ambulance and mercy services.

**INTERNATIONAL AIR CARRIERS—**

- (8) *International Scheduled Air Carriers*—are domestic and foreign air carriers designated by the Government of any State to operate international scheduled air services between Canada and any other State, pursuant to an international agreement to which Canada is a party; and
- (9) *International Non-scheduled Air Carriers*—are domestic and foreign air carriers which operate, between Canada and any other State, any commercial air service performed by domestic carriers in (2), (3), (4), (5) and (7).

**Canada's International Flag Carriers**

**Air Canada.**—High standards of technical excellence, coupled with a route network of 89,000 unduplicated route miles in domestic and international commercial air services extending to 58 destinations in Canada, the United States, the British Isles, Europe and the Caribbean have made Air Canada a major asset to the Canadian nation. The years 1969 and 1970, the 32nd and 33rd of Air Canada operations, were characterized by modest increases in passenger traffic. In 1970, traffic volume increased 16 p.c. in terms of scheduled passenger miles flown but it is estimated that if the strike effect (the International Association of Machinists and Aerospace Workers forced a one-month shut-down in 1969) were eliminated, the increase would be only 6 p.c. The load factor for the two years was the same at 57 p.c. In 1970, the Federal Government decision to adopt a floating Canadian dollar exchange rate on June 1 had an adverse effect on Air Canada income. Because of the tariff provision permitting payment in either currency, payment of fares by Canadians in United States funds increased substantially in the last seven months of the year. Accordingly, proceeds in terms of Canadian dollars were reduced.

Passengers carried on all services by Air Canada numbered 7,464,000 in 1970 and 6,563,000 in 1969, representing an increase of 13 p.c. Available seat-miles on scheduled services were up to 11,652,000,000 in 1970 from 10,058,000,000 in 1969 and revenue passenger miles on scheduled services reached 6,681,710,000 in 1970 compared with 5,740,299,000 in the previous year. Operating revenues in 1970 were up modestly to \$478,259,000 from \$404,652,000, of which passenger revenue on scheduled services was \$387,486,000, a slight increase over \$332,727,000 in 1969. An encouraging trend was strong growth in the company's Atlantic scheduled passenger traffic, which moved up 42 p.c. over 1969 as the market responded to lower fares and removal by the British Government of restrictions on travel allowances. Air freight revenues rose 25 p.c. and charter revenues reached \$14,378,000, an increase of 75 p.c. over 1969. The company suffered a net loss of \$1,072,000 in 1970 which compared with a net profit of \$1,548,000 in 1969. Return on investment dropped from 4.8 p.c. to 4.5 p.c.

During 1970, Air Canada took delivery of seven DC-8-63s and three DC-9s. The fleet consisted of 117 aircraft at year-end—38 DC-8s, 36 DC-9s, 12 Vanguards and 31 Viscounts. Jet travel accounted for 90 p.c. of seat-miles provided, compared with 85 p.c. in 1969.



## 1.—Operating Statistics of Air Canada, 1961-70

NOTE.—Some of the figures in this table have been calculated from the monthly reports of Air Canada but most of them are from the audited annual reports of the corporation; there are slight variations in a few of the figures but the degree of error is less than 1 p.c.

Year	Traffic				Operating Revenue			Operating Expenses	Operating Profit	Net Income or Loss (-)
	Revenue Passengers <sup>1</sup>		Revenue Com- modity <sup>2</sup>	Mail	Passenger	Freight <sup>3</sup> and Mail	Total <sup>4</sup>			
	No.	Passenger- miles	Ton- miles							
	'000	'000	'000	'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
1961...	3,712	2,481,122	24,091	11,934	143,301	19,466	165,436	163,292	2,144	-6,450
1962...	3,865	2,659,578	29,827	12,862	158,792	21,914	183,473	176,078	7,395	-3,541
1963...	3,967	2,887,239	35,781	13,859	167,653	24,088	199,390	188,122	11,268	528
1964...	4,189	3,150,956	45,590	15,731	177,091	27,684	213,910	203,527	10,383	1,406
1965...	4,753	3,715,635	61,662	17,287	209,926	31,839	250,126	237,401	12,725	3,990
1966...	5,294	4,331,583	80,917	19,081	243,877	36,924	289,943	275,990	13,953	2,910
1967...	6,393	5,341,223	92,427	21,529	295,553	40,230	345,611	329,731	15,880	3,547
1968...	6,469	5,752,774	130,805	22,860	328,137	50,854	387,628	359,610	28,018	8,184
1969...	6,563	6,018,297	155,900	25,151	332,727	57,315	404,652	386,188	18,464	1,548
1970...	7,464	6,681,710	184,782	26,593	387,486	56,093	478,259	457,396	20,863	-1,072

<sup>1</sup> Scheduled and non-scheduled services.

<sup>2</sup> Freight, express and excess baggage.

<sup>3</sup> Freight includes

express and excess baggage.

<sup>4</sup> Passenger, freight, excess baggage and mail, plus all other operating revenue.

**Canadian Pacific Air Lines Limited (CP Air).**—This private airline was established in 1942 by integrating 10 bushline air carrier companies and has since developed into a major national flag carrier for Canada. In 1970, CP Air carried 1,437,000 revenue passengers 21,601,000,000 passenger-miles. Operating revenues for the year reached \$150,000,000, an advance of 12 p.c. over 1969.

CP Air's network radiates from the company's system headquarters at Vancouver, serving Japan and Hong Kong over the Great Circle North Pacific Route; Holland over the Polar Route via Calgary and Edmonton; Honolulu, Fiji and Australia via the South Pacific Route; Portugal, Spain, Italy, Greece and Israel via Toronto and Montreal on the South Atlantic Route; Mexico, Peru, Chile and Argentina via Montreal and Toronto on the South American Route; and regular West Coast flights between San Francisco and Vancouver. The airline's operations in the Far East are extremely important to Canada's relations with the developing nations in that area. Within Canada, CP Air transcontinental air services link Vancouver, Edmonton, Calgary, Winnipeg, Toronto, Ottawa and Montreal, and the company also operates interior services in British Columbia and the Yukon Territory.

CP Air became an all-jet airline in 1969, operating 22 aircraft—seven Boeing 737s, four Boeing 727s and 11 DC-8s.

### Regional Airlines

**Eastern Provincial Airways (1963) Limited.**—This company is the regional carrier for the Atlantic Provinces. In 1970, it carried 239,628 revenue passengers 106,752,649 passenger-miles, and 6,098 tons of freight 2,041,572 ton-miles. Operating revenues were \$13,817,016, 17 p.c. higher than the 1969 revenues of \$11,800,000. Scheduled services are operated to Charlottetown and Summerside in Prince Edward Island; Moncton-Chatham-Charlo in New Brunswick; Sydney and Halifax in Nova Scotia; Deer Lake-Stephenville-Cornei Brook, Gander, St. John's and St. Anthony in Newfoundland; Goose Bay, Wabush, Labrador City and Twin Falls-Churchill Falls in Labrador; and Montreal, Sept Îles and the Magdalen Islands in Quebec. In addition to its scheduled services lifting passengers and freight in the four Atlantic Provinces and in eastern Quebec, the airline provides air

services for mineral exploration, forestry, seal and ice patrol, aerial photography and for other purposes, thus making a significant contribution to the development of areas in Canada relatively inaccessible by surface transport.

The Company's fleet at the end of 1971 comprised three Boeing 737s, three Handley Page Dart Heralds, two Carvairs, and four DC-3s.

**Nordair Ltée-Ltd.**—Nordair, with head office at Dorval, Que., was established in 1957 by the merger of Mont Laurier Aviation and Boreal Airways. Since its formation, Nordair has expanded steadily and operates scheduled services in Quebec, Ontario and the Northwest Territories, as well as extensive domestic and international charter flights throughout Canada and from Eastern Canada to southern United States and Caribbean islands.

Scheduled services are operated between Montreal, Ottawa, Hamilton and Pittsburgh and between Montreal and Great Whale and Fort Chimo in Quebec and Frobisher Bay and Resolute Bay in the Northwest Territories. Nordair also maintains an extensive air service based at Frobisher Bay in the Northwest Territories, supplying numerous Arctic settlements in the Baffin Island area, such as Clyde River-Cape Christian, Broughton Island, Pangnirtung, Cape Dyer, Cape Dorset, Coral Harbour, Hall Beach, Igloolik and Pelly Bay. In late 1971, applications were before the Air Transport Committee to extend Nordair's services to Windsor in Ontario and to Yellowknife in the Northwest Territories.

Nordair's charter flights accommodate inclusive tour travels and group travel. Nordair's northern charter operations are based at Fort Chimo and Frobisher Bay from which points a variety of aircraft, including wheel-, ski- and float-equipped aircraft, are available.

Nordair's fleet is composed of four Boeing 737-200Cs, five DC-3s, three C-46s, one DC-4, one F227-E, one Twin Otter, one Short Skyvan, one Beaver and one Mallard amphibious aircraft.

**Pacific Western Airlines Ltd.**—Pacific Western Airlines Ltd., with head office at Vancouver International Airport, operates over more than 11,000 route-miles; its services include scheduled mainline local regular unit toll and charter flights in British Columbia, Alberta, the Northwest Territories and Saskatchewan.

Regularly scheduled mainline services are operated north-bound from Edmonton to Prince George, Prince Rupert, Dawson Creek (B.C.); Peace River, Fort McMurray, Rainbow Lake, Fort Chipewyan (Alberta); Uranium City (Saskatchewan); Fort Resolution, Hay River, Fort Smith, Fort Simpson, Wrigley, Norman Wells, Inuvik, Yellowknife, Cambridge Bay and Resolute (Northwest Territories). The only no-reservations-required AirBus service in Canada operates daily between Calgary and Edmonton in Alberta. On the Pacific Coast, mainline services are operated from Vancouver to Comox, Powell River, Campbell River and Port Hardy. In the interior region of British Columbia, Pacific Western operates scheduled services from Vancouver to Kelowna, Penticton, Cranbrook, Kamloops and through to Calgary in Alberta. The company also operates international charter passenger services. Large aircraft charters are operated from the major centres of Vancouver, Edmonton and Calgary. Pacific Western operates extensive freight services, both scheduled and chartered, into the Northwest Territories. Three Lockheed Hercules provide charter freight services throughout the free world.

In 1970, 887,634 revenue passengers were carried, revenue passenger-miles totalled 530,525,064, cargo ton-miles were 26,595,383 and aircraft miles flown numbered 11,510,226. Comparable figures for 1969 were 704,039, 385,089,041, 18,710,463 and 9,446,652, respectively.

Aircraft operated by Pacific Western Airlines number 24, including: one Boeing 707, four Boeing 737s, five Convair 640 jet-props, three Lockheed Hercules (freight), three DC-6s, two DC-4s, two DC-3s, two Mallards and two Lockheed Electras (passenger and freight).

**Quebecair.**—Quebecair, with head office at Montreal, offers scheduled services in Quebec and Labrador. The company dates from 1946 and was founded under the name "Le Syndicat d'Aviation de Rimouski". In 1947, the name was changed to Rimouski Airlines and the company inaugurated an air transport service between the shores of the Gulf of St. Lawrence, linking Matane, Mont Joli, Rimouski, Forestville, Baie Comeau and Sept Îles. Until 1953, service was limited to towns and small centres located between Rimouski and Gaspé on the south shore of the St. Lawrence River and between Forestville and Sept Îles on the north shore. In 1953, with amalgamation of Gulf Aviation, the name "Quebecair" was adopted. With the expansion of mining and industrial activities, it extended its network to Quebec City and Schefferville in 1955, to Montreal in 1957, to Gagnon and Rivière du Loup in 1959, to Wabush in 1960, to Manicouagan and Saguenay in 1961 and to Murray Bay in 1962. During 1965, Quebecair acquired Northern Wings Limited and Northern Wings Helicopters Limited and merged their scheduled services. In 1967, Quebecair acquired A. Fecteau Transport Aérien Ltée, thus extending its operations to the Abitibi region and eastern bank of Hudson Bay.

Quebecair is responsible for the operation of the scheduled services and the subsidiaries handle flights by light aircraft, charter and contract services. Scheduled services are operated over 6,000 miles serving some 43 localities in nine economic regions of Quebec and Labrador. Points linked are Montreal, Quebec City, Murray Bay (Charlevoix), Baie Comeau (Hauterive), Churchill Falls (Twin Falls), Gagnon, Wabush (Labrador City), Mingan, Mont Joli-Rimouski, Rivière au Tonnerre, Saguenay (Bagotville), Schefferville, Sept Îles, Senneterre, Mistassini, Temiscaming, Lac Doda, Lac Caché, Lac Mistassini, Rupert River, Fort George, Obedjiwan, Oskelaneo, Manouane, Val d'Or, Amos, Lebel-sur-Quévillon, Rupert House, Chibougamau, Matagami, Blanc Sablon, Saint Paul, Old Fort Bay, St. Augustin, La Tabatière, Tête à la Baleine, Harrington Harbour, Gethsemani, Kégaska, Natashquan, Aguanish, Baie Johan Beetz, and Havre St. Pierre. Quebecair also operates group charters within Canada, to the United States, to the Caribbean, to Mexico and to South America, using jet aircraft.

Revenue passengers transported by Quebecair only in 1970 numbered 212,400 for 88,448,700 passenger-miles, and 2,350 tons of goods were hauled for a total revenue of \$9,314,900.

At the end of 1970, the combined fleet of Quebecair and its subsidiaries totalled 75 units, including: two BAC-1-11s, four F-27s, five DC-3s, one C-46, nine DHC-3 Otters, 19 DHC-2 Beavers, eight Cessna 180s, five Cessna 185s, one Dornier 28, one Beechcraft Queen Air, and 20 helicopters.

**Transair-Midwest.**—This company was formed in November 1969 through the merger of Transair Limited and Midwest Airlines Ltd., both of Winnipeg. With headquarters at the Winnipeg International Airport, the company operates scheduled services in Manitoba, Saskatchewan, Ontario and the Northwest Territories and charter flights throughout Canada and from Canada to the United States, Mexico and the Caribbean. The company's scheduled services are operated in four areas: (1) the Prairies—from Winnipeg to Regina-Saskatoon-Prince Albert and return; (2) Manitoba—from Winnipeg to The Pas-Flin Flon-Lynn Lake-Thompson and return; from Winnipeg to Gillam-Churchill and return; from Winnipeg to Thompson-Churchill and return; from Winnipeg to Norway House and return; from Winnipeg to Brandon and return; from Winnipeg to Dauphin-Yorkton and return; (3) Eastern—from Winnipeg to Thunder Bay-Toronto and return; from Winnipeg to Kenora-Dryden-Thunder Bay-Sault Ste. Marie-Toronto and return; from Winnipeg to Red Lake and return; and (4) Arctic—from Churchill to Eskimo Point-Rankin Inlet-Baker Lake and return; from Churchill to Coral Harbour-Repulse Bay-Hall Beach and return. Several other points in the Northwest Territories are also served by flights from Churchill.

The diversity of Transair-Midwest's aircraft fleet, which is comprised of 47 aircraft, including 14 helicopters, supports the company's claim of being Canada's "most versatile"



and "most complete" airline. The fleet ranges from small, single-engined aircraft equipped with wheels, skis or floats for access to remote hinterland and short-airstrip areas, to multi-engine aircraft, including two Boeing 737 twin jets and three Argosy 222 freighters capable of carrying 28,500 lb. Most of the fleet is stationed at Winnipeg but several turbo-prop and piston aircraft are usually positioned at the company's major base at Churchill, Man., in support of its Arctic and DEW-line operations. Since 1961, under contract with the United States Air Force, Transair has operated, from Winnipeg and Churchill, the vertical re-supply flights to the four main sites in the Canadian sector of the DEW-line in the extreme Arctic.

Major company developments in 1970 were: (1) the receipt of two Boeing 737 twin jets which operate in all passenger, or all cargo, or mixed passenger and cargo configurations; (2) the commencement on Apr. 26 of a daily Boeing 737 jet service on a new route from Winnipeg to Thunder Bay-Toronto and return; (3) the extension on the same date of service on a new route from Thunder Bay to Sault Ste. Marie-Toronto and return, of a previously operated Winnipeg-Kenora-Dryden-Thunder Bay service and the introduction of YS-11A equipment on the entire route on Apr. 26; (4) the introduction of Boeing 737 jet service from Winnipeg to the northern Manitoba points, The Pas, Flin Flon, Lynn Lake, Thompson and the provision of through jet service from these points to Thunder Bay and Toronto; (5) a marked upswing in passenger and cargo traffic to and from northern Manitoba.

During the first half of 1971 developments included: (1) the introduction of Argosy 222s into domestic charter service and the substantial increase in charters which they generated particularly in connection with oil and gas exploration in the high Arctic; (2) a rapid expansion of domestic and transborder charters, especially with Boeing 737 aircraft; (3) the retirement of DC-4 aircraft and the introduction of Boeing 737 jets on DEW-line charters; (4) the commencement of Twin Otter "Commuter Service" on Winnipeg-Brandon and return, Winnipeg-Dauphin-Yorkton and return, and Winnipeg-Red Lake and return routes; (5) the introduction of a twice weekly service from Red Lake to Toronto and return via intermediate points; (6) a marked improvement in the company's over-all financial condition.

In 1970, Transair flew 4,346,819 miles and carried 261,206 passengers for 113,000,000 passenger-miles, compared with 180,000 revenue passengers for 72,000,000 passenger-miles in 1969; 9,633 tons of goods were hauled for 4,527,000 ton-miles as against 9,432 tons for 5,000,000 ton-miles in 1969. Operating revenues of \$14,024,000 were 21 p.c. above the revenue of \$11,029,000 in 1969. Employees numbered 488, including 89 pilots.

### Commonwealth and Foreign Scheduled Commercial Air Services

At the end of 1970 there were 32 foreign air carriers holding valid Canadian operating certificates and licences issued for the following international scheduled commercial air services into Canada:\*

*Aeroflot*, operating between Moscow (U.S.S.R.) and Montreal (Canada).

*Aerlínte Éireann Teoranta (Irish International Airlines)*, operating between Shannon (Ireland) and Montreal (Canada).

*Aerónaves de México, S.A.*, operating between Mexico City (Mexico) and Montreal and Toronto (Canada) without local traffic privileges between Toronto and Montreal (Canada).

*Alaska Airlines, Inc.*, operating between Ketchikan (Alaska) and Prince Rupert (Canada).

*Alitalia—Linee Aeree Italiane*, operating between Milan (Italy), Montreal (Canada) and Chicago (U.S.A.).

*Allegheny Airlines Inc.*, operating between Erie (U.S.A.) and Toronto (Canada).

\* Points outside of Canada, which are named in licences but to which no traffic rights to or from Canada apply, are omitted; also omitted are services authorized by licences which are under suspension but not cancelled.



- American Airlines Inc.*, operating between New York/Newark (U.S.A.) and Toronto (Canada); between Chicago (U.S.A.) and Toronto (Canada); and between Los Angeles (U.S.A.) and Toronto (Canada).
- British Overseas Airways Corporation*, operating between London and Manchester (England) and Gander (Canada); Montreal and Toronto (Canada) and Chicago (U.S.A.) without local traffic rights between Canadian points but with full traffic rights between Montreal (Canada) and Chicago (U.S.A.); and between London (England), Prestwick (Scotland), Gander (Canada), Bermuda, Nassau (Bahamas), Montego Bay (Jamaica), Barbados and Trinidad.
- BWIA (British West Indian Airways)*, operating between Port of Spain (Trinidad), Antigua, Barbados and Toronto (Canada).
- Ceskoslovenske Aerolinie (Czechoslovak Airlines)*, operating between Prague (Czechoslovakia), Montreal (Canada) and New York (U.S.A.).
- Compagnie Nationale Air France (Air France)*, operating between Paris (France), Montreal (Canada) and Chicago (U.S.A.) via any one or more of the following: United Kingdom, Shannon (Ireland), Iceland, Azores.
- Deutsche Lufthansa Aktiengesellschaft (Lufthansa German Airlines)*, operating between Frankfurt, Cologne/Bonn (Germany) and Montreal (Canada); and between Frankfurt (Germany) and Montreal (Canada) restricted to a once-weekly cargo service.
- Eastern Air Lines Inc.*, operating between Washington (U.S.A.) and Montreal and Ottawa (Canada) direct or via the following intermediate points: Syracuse, Scranton-Wilkes-Barre, Allentown, Bethlehem, Easton, Reading, Lancaster, Baltimore and Endicott, Johnson City (U.S.A.) with no domestic rights between Montreal and Ottawa (Canada) except stopover privileges at Montreal on through traffic between Ottawa (Canada) and authorized points in the U.S.A. and stopover privileges at Ottawa on through traffic between Montreal and authorized points in the U.S.A.; between New York (U.S.A.) and Montreal and Ottawa (Canada) with no traffic privileges between Montreal and Ottawa (Canada) except stopover privileges at Montreal (Canada) on through traffic New York (U.S.A.) to Ottawa (Canada) and stopover privileges at Ottawa (Canada) on through traffic New York (U.S.A.) to Montreal (Canada); between Buffalo (U.S.A.) and Toronto (Canada); and between Tampa/Miami (U.S.A.) and Toronto (Canada).
- El Al Israel Airlines Ltd.*, operating between Tel Aviv (Israel), Amsterdam (Netherlands), Geneva (Switzerland), New York (U.S.A.) and Montreal (Canada).
- Hughes Air West, a division of Hughes Air Corporation*, operating between Spokane (U.S.A.) and Calgary (Canada).
- Japan Air Lines Company Ltd.*, operating between Tokyo (Japan), Vancouver (Canada), San Francisco (U.S.A.) and Mexico City (Mexico).
- Koninklijke Luchtvaart Maatschappij N.V. (KLM Royal Dutch Airlines)*, operating between Amsterdam (Netherlands) and Montreal (Canada).
- Lineas Aereas de España (Iberia Air Lines of Spain)*, operating between Madrid (Spain) and Montreal (Canada).
- Mohawk Airlines Inc.*, operating between Burlington (U.S.A.) and Montreal (Canada), and between Buffalo and Rochester (U.S.A.) and Toronto (Canada).
- North Central Airlines Inc.*, operating between Duluth/Superior (U.S.A.) and Thunder Bay (Canada), and between Detroit (U.S.A.) and Toronto (Canada).
- Northeast Airlines Inc.*, operating between Boston (U.S.A.) and Montreal (Canada) direct or via the intermediate points White River Junction, Montpelier/Barre and Burlington (U.S.A.), and between Tampa/Miami (U.S.A.) and Montreal (Canada).
- Northwest Airlines Inc.*, operating between Minneapolis (U.S.A.) and Winnipeg (Canada) via Fargo or Grand Forks (U.S.A.).
- Olympic Airways S.A.*, operating between Athens (Greece), Montreal (Canada) and Chicago (U.S.A.).
- Qantas Airways Limited*, operating between Sydney (Australia), Fiji Islands, Canton Island, Honolulu and San Francisco (U.S.A.) and Vancouver (Canada).
- Société Anonyme Belge D'Exploitation de la Navigation Aérienne (Sabena Belgian World Airlines)*, operating between Brussels (Belgium) and Montreal (Canada).
- Scandinavian Airlines System*, operating between Stockholm (Sweden), Oslo and Bergen (Norway), Copenhagen (Denmark) and Montreal (Canada).
- Seaboard World Airlines Inc.*, operating between New York, Philadelphia and Baltimore (U.S.A.) and Zurich (Switzerland) via Gander (Canada), Shannon (Ireland), Paris (France) and Basle and Geneva (Switzerland) for the carriage of mails and goods only; and between

New York, Philadelphia and Baltimore (U.S.A.) and Munich (Germany) via Gander (Canada), Shannon (Ireland) and (a) Glasgow (Scotland), London (England), Brussels (Belgium), Cologne/Duesseldorf, Frankfurt, Stuttgart, Nuremberg and Wiesbaden (Germany) and (b) Glasgow (Scotland), London (England), Amsterdam (Netherlands), Hamburg, Frankfurt, Stuttgart, Nuremberg and Wiesbaden (Germany) for the carriage of cargo only.

*Swissair (Swiss Air Transport Company Ltd.)*, operating between Zurich and/or Geneva (Switzerland) and Montreal (Canada).

*Transporter Aereos Portugueses S.A.R.L.*, operating between Lisbon (Portugal), Azores and Montreal (Canada).

*United Air Lines Inc.*, operating between Chicago (U.S.A.) and Toronto (Canada), and between Seattle (U.S.A.) and Vancouver (Canada).

*Western Air Lines Inc.*, operating between Denver and Great Falls (U.S.A.) and Calgary (Canada), and between Los Angeles/San Francisco (U.S.A.) and Vancouver (Canada) via Portland (U.S.A.).

*Wien Consolidated Airlines Inc.*, operating between Juneau (U.S.A.) and Whitehorse (Canada).

### Personnel Licences

At Mar. 31, 1971, the total number of personnel licences in force in Canada was 39,479, compared with 37,492 on the same date of 1970. The 1971 licences were constituted as follows, with comparable 1970 figures in brackets: glider pilots, 1,529 (1,356); private pilots, 25,237 (23,748); commercial pilots, 4,730 (4,677); senior commercial pilots, 744 (698); airline transport pilots, 2,792 (2,676); flight navigators, 211 (216); air traffic controllers, 1,025 (948); flight engineers, 93 (95); aircraft maintenance engineers, 3,113 (3,074); and gyrocopter pilots, 5 (4).

### Air Traffic Control

The primary functions of Air Traffic Control in the Ministry of Transport are to prevent collisions between aircraft operating within controlled airspace and between aircraft and obstructions on the manoeuvring area of controlled airports, and to expedite and maintain a safe, orderly flow of air traffic. These functions are carried out by Air Traffic Controllers situated in Airport Control Towers, Terminal Control Units and Area Control Centres. The services provided by these units are described below.

*Airport Control Service* is provided to aircraft operating on the manoeuvring area or in the close vicinity (5-10 nautical-mile radius) of civil airports where the volume and complexity of air traffic indicate its need in the interest of flight safety. Service is also provided to other traffic, such as vehicles and maintenance equipment, on the manoeuvring area of an airport. Radio is the prime means of communication in the provision of the service, although light signals may be used where radio is not available. Airport Control Towers are in operation at: Gander International, St. John's, and Wabush (Labrador) in Newfoundland; Halifax International and Sydney in Nova Scotia; Fredericton, Moncton and Saint John in New Brunswick; Baie Comeau, Cartierville, Montreal International, Quebec, St. Honoré, St. Hubert, St. Jean and Sept Îles in Quebec; Buttonville, Hamilton, London, North Bay, Oshawa, Ottawa International, Sault Ste. Marie, St. Catharines, Thunder Bay, Toronto International, Toronto Island, Waterloo-Wellington and Windsor in Ontario; Brandon, St. Andrews and Winnipeg International in Manitoba; Regina and Saskatoon in Saskatchewan; Calgary International, Edmonton International, Edmonton Industrial, Grande Prairie, Lethbridge and Springbank in Alberta; Abbotsford, Fort St. John, Kamloops, Kelowna, Langley, Penticton, Pitt Meadows, Port Hardy, Prince George, Vancouver International and Victoria International in British Columbia; and Whitehorse in the Yukon Territory.

*Terminal Control Service* is provided to aircraft which are 'climbing out' after departure from or 'letting down' for a landing at an airport. It is a service provided to such flights operating in accordance with the Instrument Flight Rules in order to separate them from

one another and from en route aircraft operating through the Terminal Area which normally is an airspace within 30-50 nautical miles of an airport and which, in some cases, may encompass more than one airport. Radar is normally used, in conjunction with direct controller-pilot radio communication, in the provision of this service. Procedural means are used at some remote locations where radar is not yet available. The service is provided from all Area Control Centres but separate Terminal Control Units are installed at high traffic density airports where no Area Control Centre is located. Such separate units have been established at Halifax in Nova Scotia; Quebec City in Quebec; North Bay, Ottawa and Thunder Bay in Ontario; Regina and Saskatoon in Saskatchewan; and Calgary in Alberta.

*Area Control Service* is essentially an aircraft separation and flight-following service provided to aircraft operating en route between airports. All flights that elect to file flight plans are given flight-following service, and separation is provided to all aircraft operating in accordance with the rules for instrument flight or controlled visual flight within designated controlled airspace, i.e., all airways below 23,000 feet above sea level (ASL) and all airspace in Canada south of 70° North latitude above 23,000 feet ASL. In addition, the service is provided north of 70°N to all aircraft operating above 29,000 feet ASL, and to aircraft operating above 5,000 feet over almost all of the western half of the North Atlantic Ocean. Separation is provided using both radar and procedural means, with direct and indirect communication between controller and pilot. An extensive land-line communication system links an Area Control Centre with all affiliated Airport Control Towers, Terminal Control Units and communication stations and with adjacent Area Control Centres in Canada and adjoining States, as well as with other agencies providing supporting and auxiliary services or having a need to deal directly with the centre, i.e., air carrier operation agencies, military operation agencies, etc. Additional services provided by Area Control Centres are:—

*Aircraft Movement Information Service* which assists the Department of National Defence in establishing the identification of all aircraft operating in specified areas.

*Customs Notification Service* which facilitates the notification of the appropriate customs agency by pilots planning to cross the Canada-United States border at certain designated customs airports. This service is provided when requested by a pilot in his flight plan.

*Alerting Service* which ensures that the appropriate search-and-rescue organization is notified of an aircraft which may be in need of its aid.

*Flight Information Service* which provides pilots with advice and information useful for the safe and efficient conduct of flight, including weather reports and forecasts, field condition reports, data concerning aids to navigation, traffic information and other information of use to the pilot in planning and conducting a flight.

Area Control Centres are located at Gander in Newfoundland; Moncton in New Brunswick; Montreal in Quebec; Toronto in Ontario; Winnipeg in Manitoba; Edmonton in Alberta; and Vancouver in British Columbia.

*Airspace Reservation Service* provides reserved airspace for specified operations within controlled airspace and information to other pilots concerning these reservations and military activity areas in controlled and uncontrolled airspace. The Airspace Reservation Coordination Office, located in Ottawa, is responsible for provision of the service in all the airspace of Canada and in the Gander Oceanic Control Area.

## Ground Facilities

Canadian aerodromes are listed in Table 2, classified by regions as licensed or unlicensed land facilities or seaplane bases, or military aerodromes. Licensed aerodromes are those that are inspected by Ministry of Transport inspectors at regular intervals and meet specific standards. In addition to aerodromes, a network of radio aids to navigation is maintained to facilitate en route navigation and safe landings under instrument conditions.

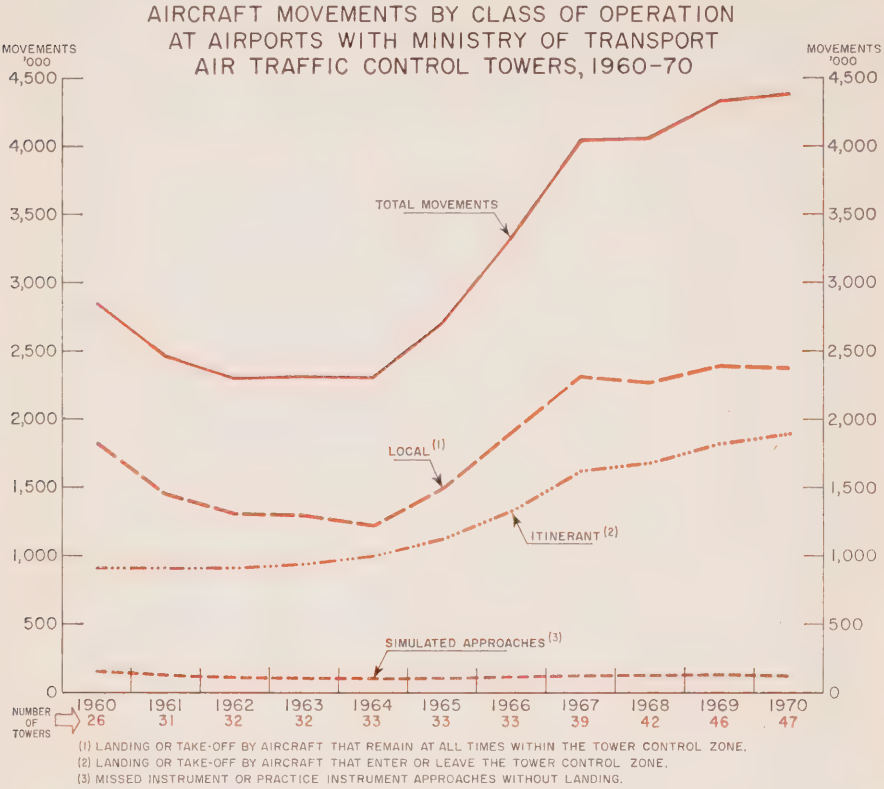
**2.—Aircraft Landing Areas classified by Type of Facility and Operator, by Region,  
as at April 1971**

Type of Facility and Operator	Atlantic	Quebec	Ontario	Central	Western	Pacific	Total
	No.	No.	No.	No.	No.	No.	No.
<b>Licensed Airports—</b>							
Ministry of Transport.....	11	12	13	14	21	16	87
Municipal.....	10	31	28	31	40	21	161
Private.....	10	35	48	19	18	7	137
<b>Heliports—</b>							
Ministry of Transport.....	3	1	—	—	—	—	4
Municipal.....	—	—	—	—	—	1	1
Private.....	—	9	11	1	10	16	47
<b>Unlicensed Airports—</b>							
Ministry of Transport.....	2	4	—	5	11	5	27
Municipal.....	5	4	—	43	15	14	81
Private.....	21	31	35	127	69	89	372
Abandoned or operator unknown....	3	12	16	18	4	—	53
<b>Licensed Seaplane Bases—</b>							
Ministry of Transport.....	—	—	—	1	—	3	4
Municipal.....	1	2	—	5	5	11	24
Private.....	6	82	57	90	31	65	331
<b>Unlicensed Seaplane Bases—</b>							
Ministry of Transport.....	—	1	—	—	—	19	20
Municipal.....	1	—	—	12	1	5	19
Private.....	10	10	15	23	28	34	120
Abandoned or operator unknown....	13	—	—	39	1	—	53
<b>Military Aerodromes—</b>							
DND (land).....	5	3	6	6	7	1	28
DND (seaplane).....	1	—	—	6	—	—	7
U.S. Navy.....	1	—	—	—	—	—	1
U.S. Air Force.....	1	—	1	—	1	—	3
R.C.M.P. (seaplane).....	1	—	—	—	—	—	1
<b>Totals, All Aerodromes.....</b>	<b>105</b>	<b>237</b>	<b>230</b>	<b>440</b>	<b>262</b>	<b>307</b>	<b>1,581</b>
<b>Land Bases.....</b>	<b>65</b>	<b>139</b>	<b>151</b>	<b>258</b>	<b>188</b>	<b>169</b>	<b>970</b>
<b>Seaplane Bases.....</b>	<b>31</b>	<b>95</b>	<b>72</b>	<b>170</b>	<b>66</b>	<b>137</b>	<b>571</b>
<b>Military Aerodromes.....</b>	<b>9</b>	<b>3</b>	<b>7</b>	<b>12</b>	<b>8</b>	<b>1</b>	<b>40</b>

**Airport Activity.**—In 1970, aircraft movements at the 165 airports reporting such movements totalled 5,944,361, of which 1,397,197 were reported by airports without towers and 4,547,164 by the 52 airports with air traffic control towers (see p. 927). Of the latter, the 47 airports with Ministry of Transport towers registered 4,375,369 aircraft movements and the five Department of National Defence airports reported 171,795 movements.



The following chart shows the growth of aircraft movements at airports with Ministry of Transport towers during the decade ended in 1970.



For the third consecutive year, Toronto International Airport led in itinerant activity. Montreal International Airport retained second place after leading from 1964 to 1967. Vancouver and Winnipeg International Airports occupied third and fourth positions, respectively, in 1970, unchanged since 1965; Ottawa was in fifth place in both 1969 and 1970, replacing Cartierville which had been fifth from 1965 to 1968.

Rankings of the five leading airports in itinerant movements for 1966, 1968 and 1970 were:—

International Airport	1966		1968		1970	
	Rank	Itinerant	Rank	Itinerant	Rank	Itinerant
		No.		No.		No.
Toronto.....	2	119,493	1	153,336	1	176,611
Montreal.....	1	125,756	2	140,511	2	152,342
Vancouver.....	3	106,930	3	129,730	3	132,606
Winnipeg.....	4	96,619	4	109,268	4	117,949
Ottawa.....	6	76,121	6	87,359	5	89,169

At airports with air traffic control towers, aircraft weighing less than 4,000 lb. accounted for 46 p.c. of the itinerant movements in 1970 and those weighing over 39,000 lb. for 31 p.c. Aircraft in the heaviest weight group (over 314,000 lb. which includes the Boeing 747, the DC-8 30-to-60 series, the Ilyushin 62 and the Super VC-10), recorded a phenomenal growth from 41 itinerant movements in 1965 to 4,027 in 1967, to 29,666 in 1969 and to 44,853 in 1970.

In 1970, international movements rose 3.1 p.c. over 1969 to reach 205,268 and 58.3 p.c. of them were reported by Toronto and Montreal International Airports. Toronto handled 67,606, of which 59,033 were "transborder" (to and from the United States) and 8,573 were "other international" (to and from points outside Canada and the United States). Montreal International reported 52,069 international movements, of which 36,413 were transborder and 15,656 were other international.

According to the 1970 survey, 113 airports without towers handled 1,397,197 movements, 2.6 p.c. more than the 1,361,790 movements reported by the 108 airports in the 1969 survey. Itinerant movements were 418,236, up 5.3 p.c. over the 397,185 in 1969, and local movements, which were mainly training flights, numbered 978,961, 1.5 p.c. higher than the 964,605 movements in the previous year.

### Section 3.—Civil Aviation Operation Statistics

The statistics of commercial air services in Canada given in Table 3 cover foreign airlines (including those of the United States) and Canadian airlines that earned annual gross flying revenues of over \$100,000 in 1966-68 and over \$150,000 in 1969 and 1970. The figures for Canadian airlines cover both domestic and international operations; those for foreign airlines cover miles and hours flown only over Canadian territory and exclude passengers and goods in transit through Canada.

#### 3.—Summary Statistics of Commercial Air Services, 1966-70

NOTE.—Most of the figures in this table are from the audited annual reports of commercial air carriers; where preliminary figures have been used, there are occasional variations from the audited figures.

Item	1966	1967	1968	1969	1970
	'000	'000	'000	'000	'000
<b>Canadian Carriers, Revenue Traffic Only—</b>					
<b>Unit Toll Transportation—<sup>1</sup></b>					
Departures..... No.	300	344	401	489	411
Hours flown..... "	377	448	487	489	504
Miles flown..... "	100,159	123,838	139,393	148,275	158,638
Passengers carried..... "	6,737	8,157	8,429	9,153	10,518
Passenger-miles..... "	5,606,610	6,935,143	7,525,660	8,174,041	9,636,058
Cargo and excess baggage ton-miles..... "	111,563	128,039	177,139	215,009	259,396
Mail ton-miles..... "	24,844	28,725	30,716	35,350	38,241
Cargo and excess baggage..... tons	91	95	118	125	157
Mail carried..... "	25	28	30	31	33
<b>Bulk Transportation—<sup>2</sup></b>					
Departures..... No.	321	336	380	389	409
Hours flown..... "	376	398	428	478	549
Miles flown..... "	34,900	36,654	42,138	50,994	55,397
Passengers carried..... "	724	791	876	1,111	1,240
Passenger-miles..... "	393,594	392,104	643,969	1,309,725	1,915,099
Goods ton-miles..... "	12,759	13,330	18,265	65,209	11,112
Freight carried..... tons	63	60	76	119	115
<b>Other Flying Services—<sup>3</sup></b>					
Hours flown..... No.	188	256	244	230	199

<sup>1</sup> Transportation of passengers or goods at a toll per unit.

<sup>2</sup> Transportation of passengers or goods at a toll

per mile or per hour for the entire aircraft.

<sup>3</sup> Comprises flying training, aerial photography, and aerial patrol

and inspection.

## 3.—Summary Statistics of Commercial Air Services, 1966-70—concluded

Item	1966	1967	1968	1969	1970
	'000	'000	'000	'000	'000
<b>Canadian Carriers, All Services—</b>					
Revenue Traffic—					
Departures..... No.	621	680	781	..	820
Hours flown..... "	940	1,101	1,158	1,196	1,253
Miles flown..... "	135,059	160,493	181,531	199,269	216,324
Passengers carried..... "	7,462	8,948	9,305	10,264	11,758
Passenger-miles..... "	6,000,213	7,327,247	8,169,629	9,483,766	11,551,156
Goods ton-miles..... "	149,166	170,095	226,121	315,569	341,750
Goods carried..... tons	179	183	224	275	305
Non-revenue Traffic—					
Hours flown..... No.	43	45	43	40	47
Passenger-miles..... "	254,033	290,276	405,322	..	..
Goods ton-miles..... "	8,650	8,746	9,488	..	..
Fuel consumed..... gals.	292,926	348,328	397,600	443,414	510,244
Oil consumed..... "	456	482	499	455	359
Average employees..... "	21	25	27	29	29
Salaries and wages paid..... \$	151,138	186,902	214,643	245,434	300,729
Operating revenues..... \$	460,556	543,610	716,377	702,659	821,752
Operating expenses..... \$	429,795	516,076	576,529	665,578	786,978
<b>Canadian and Foreign Carriers, All Services—</b>					
Hours flown..... No.	963	1,129	1,188	1,229	1,614
Miles flown..... "	143,589	171,195	192,891	211,883	220,262
Passengers carried..... "	9,024	11,596	11,875	13,219	14,306
Goods carried..... tons	207	218	269	337	343

Table 4 gives comparative figures of domestic and international traffic in 1970; for coverage, see text preceding Table 3.

4.—Comparative Statistics of Domestic and International Traffic, 1970<sup>a</sup>

Item	Canadian Airlines		Foreign Airlines		Total
	Domestic Services	International Services	United States	Other Foreign	
	'000	'000	'000	'000	'000
<b>Unit Toll Transportation,<sup>1</sup> Revenue Traffic Only—</b>					
Departures..... No.	356	55	..	..	..
Hours flown..... "	361	143	9	36	549
Miles flown..... "	98,617	60,021	3,230	9,246	171,114
Passengers carried..... "	7,799	2,719	2,268	651	13,437
Passenger-miles..... "	5,122,718	4,513,340	130,454	511,776	10,278,288
Goods ton-miles..... "	145,571	151,877	1,921	35,202	334,571
Goods carried..... lb.	259,626	120,198	52,223	70,370	502,417
<b>Bulk Transportation,<sup>2</sup> Revenue Traffic Only—</b>					
Departures..... No.	398	11	..	..	..
Hours flown..... "	513	36	..	1 <sup>3</sup>	550
Miles flown..... "	40,757	14,640	42 <sup>3</sup>	452 <sup>3</sup>	55,891
Passengers carried..... "	781	459	8	83	1,331
Passenger-miles..... "	365,216	1,549,883	1,726	27,634	1,944,459
Goods ton-miles..... "	35,238	8,875	..	1,291	..
Freight carried..... lb.	223,967	6,600	7	1,428	232,002

<sup>1</sup> Transportation of passengers or goods at a toll per unit.  
<sup>2</sup> Transportation of passengers or goods at a toll per mile or per hour for the entire aircraft.  
<sup>3</sup> Hours and miles flown are those flown only over Canada.

### 5.—Expenditure and Revenue of the Ministry of Transport in connection with Air Services, Years Ended Mar. 31, 1968-70

Item	1968	1969	1970
	\$	\$	\$
<b>Expenditure</b>			
<b>Air Transport Board</b> .....	500,261 <sup>1</sup>	1	1
<b>Air Services Administration</b> .....	4,828,463	5,409,434	6,715,505
<b>Construction Engineering and Architectural Branch, Administration</b> .....	5,742,940	6,357,586	7,094,655
<b>Civil Aviation Branch</b> .....	25,574,010	29,482,342	32,700,145
Control of Civil Aviation.....	9,872,153	10,540,434	11,744,832
Air Traffic Control.....	13,136,561	15,871,293	18,593,004
Payments to other governments or international agencies for operation and maintenance of airports and airways facilities.....	317,052	257,651	252,721
Contributions to assist in the establishment or improvement of local airports and related facilities.....	1,356,361	1,908,455	1,091,951
Subsidies toward operation of municipal and other airports.....	218,839	219,509	795,837
Grants to organizations for development of civil aviation.....	665,000	685,000	221,800
Exchequer Court Awards.....	8,044	—	—
<b>Airports and Field Operations Branch</b> .....	33,490,194	39,963,994	42,266,955
<b>Telecommunications and Electronics Branch</b> .....	33,726,046	28,341,931	34,274,269
Radio Aids to Air and Marine Navigation.....	28,904,984	28,341,931	34,274,269
Radio Act and Regulations.....	4,519,521	—	—
Payment to CNR re deficit telecommunication facilities.....	301,541	—	—
<b>Meteorological Branch</b> .....	25,543,986	26,967,797	32,104,292
<b>Totals, Expenditure</b> .....	129,405,900	136,523,084	155,155,821
<b>Revenue and Receipts</b>			
<b>Air Services Administration</b> .....	13,568	1,725	400,846
<b>Construction Engineering and Architectural Branch</b> .....	2,157	32	555,743
<b>Civil Aviation Branch</b> .....	301,539	717,960	2,634,878
Aviation personnel licences.....	79,298	223,738	209,668
Aircraft licence fees.....	8,144	12,641	13,805
Aircraft registration and airworthiness certificates.....	113,600	298,557	330,653
Fines, Aeronautics Act.....	7,413	7,110	9,593
Air Traffic Control Division.....	6,906	—	1,745
Miscellaneous.....	68,660	130,986	133,685
Refunds of previous years' expenditure.....	17,518	44,928	15,293
Licences for commercial air services.....	—	—	7,394
Recoveries—helicopter costs.....	—	—	1,913,042
<b>Airports and Field Operations Branch</b> .....	32,806,807	40,799,686	50,457,647
Aircraft landing fees.....	15,221,123	17,864,945	19,026,577
Aircraft parking and handling.....	231,124	309,810	363,651
Joint user terminal facilities charge.....	1,018,486	2,920,203	4,801,073
Land rental.....	823,369	1,000,280	1,461,408
Office and shop rental.....	2,538,865	2,879,818	3,205,229
Other rentals (living quarters, hangar space, equipment, restaurants, etc.).....	1,222,442	1,953,881	1,924,638
Concessions (gasoline and oil, taxi, restaurant, telephone, car rentals, parking, etc.).....	9,202,871	11,831,468	15,642,394
Sales (land, buildings, water, gasoline and oil, heat, power, etc.).....	977,359	1,185,898	1,255,452
Car parking meters.....	233,518	270,861	425,924
Observation roof-turnstiles.....	175,384	157,665	135,289
Mess receipts.....	185,305	270,789	386,762
Sanitary fees (garbage disposal).....	43,238	29,329	46,642
Registration fee—mobile equipment.....	167,701	137,973	153,117
Sundry services, sundries and miscellaneous.....	398,005	406,836	1,532,757
Refunds of previous years' expenditure.....	368,017	79,950	96,734

<sup>1</sup> As at Sept. 20, 1967, the Air Transport Board was consolidated under the Canadian Transport Commission.



**5.—Expenditure and Revenue of the Ministry of Transport in connection with  
Air Services, Years Ended Mar. 31, 1968-70—concluded**

Item	1968	1969	1970
	\$	\$	\$
<b>Revenue and Receipts—concluded</b>			
<b>Telecommunications and Electronics Branch</b> .....	<b>4,992,260</b>	<b>3,672,102</b>	<b>11,849,793</b>
Air-ground radio services.....	1,787,409	2,772,143	3,217,064
Radio message tolls.....	346,189	322,215	380,058
Private commercial broadcasting station licence fees.....	1,664,661	—	—
Radio operators' examination fees.....	8,202	—	—
Radio station licence fees.....	568,301	—	—
Rentals—living quarters.....	358,005	396,550	313,004
Other rentals.....	53,156	64,709	79,747
Sales (land, buildings, power, publications, etc.).....	78,768	26,493	23,720
Miscellaneous.....	112,118	73,409	115,668
Refunds of previous years' expenditure.....	15,451	16,583	48,810
Recoveries from marine services.....	—	—	7,671,722
<b>Meteorological Branch</b> .....	<b>177,567</b>	<b>202,598</b>	<b>252,295</b>
<b>Totals, Revenue and Receipts</b> .....	<b>38,293,898</b>	<b>45,394,103</b>	<b>66,151,292</b>

## PART V.—OIL AND GAS PIPELINES\*

**Oil Pipelines.**—Since the late 1940s large capital expenditures have been made each year for oil pipeline construction. In 1970, they were estimated at \$30,300,000 and were forecast at \$61,000,000 for 1971, raising the estimated cumulative total for the period 1950-71 to \$1,066,400,000.

The prime components of the network of Canadian oil pipelines are the trunks of the Interprovincial Pipe Line Company and the Trans Mountain Oil Pipe Line Company. The bulk of domestic crude oil is carried in these lines. Refineries that do not rely on these systems are located in the oil producing regions such as Calgary and Edmonton. The Interprovincial system carries crude oil eastward from Edmonton, receiving and discharging oil at various locations along its length. The Trans Mountain system operates similarly westward from Edmonton. Supplying these two trunk lines are pipeline systems funnelling oil from hundreds of fields into storage tanks at the pipeline terminals. Some of these feeder lines are impressive in themselves, not only in size of pipe and in length of route but in the volume of oil that they transport. Most of the feeder lines are in Alberta, which is to be expected because of the pre-eminent position of that province in oil production.

The main pipeline terminal at Edmonton has 10 crude oil feeder lines, including the Interprovincial extension to Redwater, as follows:—

Pipeline	Total System Length	Capacity	General Area of Supply Related to Edmonton
	miles	bbl./day	
Canadian Industrial Gas and Oil Ltd....	82	15, 000	southeast
Federated Pipe Lines Ltd.....	529	175, 000	northwest
Great Canadian Oil Sands Limited.....	266	50, 000	north-northeast
Gulf Alberta Pipe Line Company Limited	410	73, 000	south-southeast
Imperial Pipe Line Co. Ltd.....	378	72, 000	southwest
Interprovincial Pipe Line Co.....	31	110, 000	northeast
Peace River Oil Pipe Line Co. Ltd.....	1,240	115, 000	northwest
Pembina Pipe Line Ltd.....	931	180, 000	west-southwest
Rainbow Pipe Line Company, Ltd.....	605	225, 000	northwest
Texaco Exploration Company.....	173	130, 000	south

In addition, three pipelines are connected to the Interprovincial at Hardisty, some 100 miles southeast of Edmonton. Here, Gibson Associated Oil Ltd. makes deliveries of up to 15,000 bbl. daily of oil from fields just south of the pipeline terminal. Husky Pipe Line Ltd. operates a multiple-line system in which one line is used to transport condensate from

\* Prepared in the Mineral Resources Branch, Department of Energy, Mines and Resources, Ottawa.

Hardisty to mix with the heavy, asphaltic crude found at Lloydminster. The condensate-crude blend is returned to Hardisty through eight- and 10-inch lines having a total capacity of 77,000 bbl. daily. The third pipeline connection—Bow River Pipe Line Ltd. with a capacity of 27,000 bbl. daily—carries crude from the most southerly oilfields in Alberta, near Taber. Home Oil Limited operates a pipeline serving refineries in the Calgary area with oil from fields north of the city; the line also has connections with the Rangeland pipeline which, in turn, is linked to the Texaco line going north to Edmonton. Also serving Calgary is the oldest pipeline in Alberta operated by Valley Pipe Line Company, which carries crude from the historically important Turner Valley in quantities up to 15,000 bbl. daily.

The Trans Mountain pipeline has a second receiving terminal in Alberta at Edson where the Peace River pipeline makes deliveries to Trans Mountain from fields to the north. In British Columbia, the Western Pacific Products and Crude Oil Pipelines Ltd. carries crude over a distance of 500 miles from fields near Fort St. John in the northeastern part of the province to the Trans Mountain pipeline at Kamloops; this line has a capacity of 66,500 bbl. daily.

Four main pipeline systems carry crude oil from Saskatchewan fields to the Interprovincial pipeline. The largest is the Westspur Pipe Line Company-Producers Pipelines Ltd. network, with a capacity of 175,000 bbl. daily, which delivers crude from the important southeast Saskatchewan producing area to the Interprovincial terminal at Cromer, Man., and also carries crude delivered to it by Trans-Prairie Pipelines Ltd. from fields in the Midale area of southeast Saskatchewan. In 1970, a twin line 100 miles in length was built for Murphy Oil Company Ltd. from Lone Rock in the Lloydminster field to Kerrobert, Sask., on the Interprovincial trunk line. A four-inch line carries the condensate from the Interprovincial pipeline at Kerrobert, Sask., to Lone Rock where it is blended with the heavy crude oil from the Lloydminster field to make it lighter and capable of being transported by pipeline. A 10-inch line returns the blend to Kerrobert pumping station where it enters the Interprovincial main line for transport east. The South Saskatchewan Pipe Line Company, with a capacity of 115,000 bbl. daily, takes medium-gravity crude from fields near Swift Current in southwest Saskatchewan to the Interprovincial pipeline at Regina. The fourth system is the Mid-Saskatchewan Pipeline of Gulf Oil Canada Limited, which has a capacity of 10,000 bbl. daily and carries oil from the Coleville-Dodsland area to the Interprovincial terminal at Kerrobert.

The Manitoba System of Trans-Prairie Pipelines Ltd. is the only pipeline in Manitoba serving the producing fields in the general area of Virden. It carries crude to the Interprovincial terminal at Cromer and has a capacity of 27,000 bbl. daily.

*Interprovincial Pipeline.*—The system of Interprovincial Pipe Line Company is Canada's longest oil pipeline. It incorporates the wholly owned subsidiary in the United States, Lakehead Pipe Line Company Incorporated, and has a right-of-way length of 2,025 miles including a 95-mile lateral to Buffalo, New York. In 1969, 170 miles of 34-inch pipeline were added in Western Canada, thus providing three complete lines between Edmonton and Superior, Wisconsin. In addition, 290 miles of 30-inch line were laid from the Chicago area to Sarnia, thereby providing two pipelines from Superior to Sarnia, one north of Lake Michigan and one to the south. The pipeline can deliver 30 grades of crude oil. Year-end capacities of the various sections of the pipeline are shown below for 1970 and for 1971.

<i>Section</i>	1970	1971
	bbl./day	bbl./day
Edmonton-Regina.....	1,001,000	1,027,000
Regina-Cromer.....	873,000	1,017,000
Cromer-Gretna.....	1,027,000	1,104,000
Gretna-Superior.....	983,000	1,104,000
Superior-Sarnia via Straits of Mackinac.....	538,000	538,000
Superior-Chicago.....	331,000	398,000
Chicago-Sarnia.....	306,000	306,000
Sarnia-Port Credit.....	287,000	316,000
Westover-Buffalo.....	90,000	90,000

Interprovincial serves 34 refineries: three at Edmonton; one at Lloydminster via the Husky pipeline; one at Saskatoon via Saskatoon pipeline from Mildred; one at Moose Jaw via B-A Saskatchewan pipeline from Stony Beach; two at Regina; two at Winnipeg via Winnipeg pipeline from Gretna; 17 in the United States either directly or through connecting carriers; three at Sarnia; two at Oakville; one at Clarkson; and one at Port Credit.

*Trans Mountain Pipeline.*—The system of Trans Mountain Oil Pipe Line Company extends from Edmonton to Vancouver via Jasper and has a right-of-way length of 780 miles, including a section of 57 miles in the United States which belongs to a wholly owned subsidiary of Trans Mountain. Trans Mountain serves nine refineries: one at Kamloops; four at Vancouver; and four in the Puget Sound region of Washington State. Under a contract with Gulf Oil Canada Limited, facilities were completed at the Vancouver terminal to handle storage and transfer of liquid propane from railway tank cars to refrigerated Japanese tankers. First loading under the 10-year contract was made in October 1966 and, in 1970, 4,200,000 bbl. were delivered to tankers. Capacity of various segments of the system at the end of 1970 were:—

<u>Section</u>	<u>1970</u>	<u>Section</u>	<u>1970</u>
	bbl./day		bbl./day
Edmonton-Edson.....	310,000	Sumas-Ferndale.....	280,000
Edson-Kamloops.....	320,000	Sumas-Anacortes.....	270,000
Kamloops-Sumas.....	355,000	Sumas-Burnaby.....	335,000

*Montreal-Portland Pipeline.*—The Montreal refinery centre is served by a 236-mile pipeline which is a joint system of Montreal Pipe Line Company and its wholly owned subsidiary in the United States, Portland Pipe Line Corporation. This line takes delivery of tanker-borne crude from Venezuela, the Middle East and Africa at Portland, Maine. In 1965, the company completed a 24-inch pipeline alongside the existing 18-inch and 24-inch crude oil lines. An additional 24-inch line was completed under the St. Lawrence River in 1967 to serve the refineries in Montreal and, at the same time, 16- and 20-inch lines were installed for future use. Present capacity of the system is 514,000 bbl. daily.

*Product Pipelines.*—Traditionally, a product pipeline carries refined products from oil refineries to truck terminals in large consuming centres. However, with the growth of natural gas processing in Canada, which results in large volumes of products such as propane, butane and pentanes plus being produced, a new type of product line has emerged which carries these products to markets or to refineries.

There are three product lines in Eastern Canada, all supplying markets in Ontario with refined petroleum products. Two pipelines—Sun-Canadian Pipe Line Company and Sarnia Products Pipe Line—run from refineries at Sarnia to bulk plants in London, Hamilton and Toronto. Trans Northern Pipe Line Company, once a pipeline carrying products from Montreal to markets in Ontario as far west as Hamilton, now has a two-way flow. Products from Montreal are delivered only in the area east of Brockville, including the Ottawa Valley; products from refineries west of Toronto are carried eastward as far as Kingston.

In Western Canada, the Petroleum Transmission Company pipeline carries propane, butane and pentanes plus from a plant at Empress in Alberta to Winnipeg in Manitoba, a distance of 578 miles. The predominant product carried is propane which is also marketed at various locations along the line. Elsewhere in Alberta, the Rimbey Pipe Line Company transports condensate from the Rimbey gas plant and takes deliveries from the Rangeland condensate pipeline to serve areas north of Calgary as far as Edmonton. Also going to Edmonton from the Leduc gas conservation plant are three pipelines owned by Nisku Products Pipe Line Company Ltd., one each for propane, butane and pentanes plus. Near Calgary, Home Oil Company operates a condensate pipeline to serve refineries there and also to make deliveries to the Rangeland condensate pipeline. In 1969, a 186-mile, 8-12-inch pipeline was built by Dome Petroleum Limited to transport mixed natural gas liquids from



the Alberta Natural Gas Company's new gas reprocessing plant at Cochrane to Interprovincial's Edmonton terminal. The liquids are transported to plants at Superior, Wisconsin, and Sarnia, Ont., where they are fractionated into propane, butane and other products for use in the surrounding market areas. There are other condensate pipelines in Alberta, most of which are associated primarily with production and do not serve end-users.

On the Prairies a new pattern of distribution began to emerge with the completion of construction of Gulf Oil Canada Limited's major products pipeline system in Alberta during 1970. This 10-inch pipeline is 193 miles long and carries finished products from Gulf's new 80,000-bbl./day Edmonton refinery southward to terminals in Red Deer and Calgary. The remainder of the refinery's products slated for other Prairie Province centres are shipped via Interprovincial pipeline to terminals along the route. In this connection, Interprovincial is converting its original 20-inch line out of Edmonton exclusively to products and gas liquids, using the larger lines for crude oil.

*Pipeline Tariffs.*—Typical of the charges to move crude oil are the following pipeline tariffs:—

	<i>Charge</i>	<i>Distance</i>
	cts./bbl.	miles
Edmonton to Vancouver.....	40.0	718
Edmonton to Regina.....	20.7	438
Edmonton to Winnipeg.....	32.7	847
Edmonton to Sarnia.....	48.0	1,743
Edmonton to Port Credit.....	51.0	1,899
Portland to Montreal.....	11.0	236

**Natural Gas Pipelines.**—The authorization of large-volume gas removal from British Columbia and Alberta, beginning in the mid-1950s, led to the development of the first major gas transmission pipelines in Canada. These major lines provided the framework for the development of the extensive pipeline network which now serves most centres of population from Vancouver to Montreal, and transports gas for export at seven points along the Canada-United States border. Planning is under way to extend major transmission lines northward into areas not served by the existing system in order to transport gas from the Canadian Arctic islands and the Prudhoe Bay area of Alaska to southern markets. Three groups of companies have put forward proposals for such pipelines and substantial expenditures are being made on research programs aimed at assessing the technical problems and environmental effects of pipeline construction in the North. In order to assist companies in the initial planning phases, the Federal Government issued a set of guidelines outlining the criteria which must be met to protect the indigenous people and the northern environment during the construction and operation of the pipelines.

Pipelines are usually categorized under three headings—gathering lines, transmission lines and distribution lines. The gathering lines are those that take gas from the producing wells or separators to the field gate or some other delivery point. Transmission lines are normally the large-diameter pipelines that take gas from gathering lines and transport it to the distributors for delivery to the ultimate consumer. During 1970, capital expenditures of \$319,100,000 were made and expenditures of \$408,000,000 were forecast for 1971, bringing cumulative expenditures for the period 1955-71 to an estimated \$2,220,500,000 for gathering and transmission systems, with an additional \$1,321,400,000 for distribution systems. In total, there were 59,209 miles of pipeline in operation at the end of 1970, of which 6,829 miles were gathering, 18,663 miles were transmission and 33,717 miles were distribution.

Unlike oil pipeline companies which are common carriers that transport oil for a fixed charge, gas pipeline companies, with few exceptions, own the gas that is transported. The principal exception is the Alberta Gas Trunk Line Company which delivers virtually all of the gas exported from Alberta to the provincial boundary where main transmission companies accept delivery. This is an important exception because most of the Canadian gas reserves are in Alberta. The Alberta Gas Trunk system contains 3,246 miles of pipeline.



Some details of the main transmission systems are contained in the following paragraphs. Like oil pipelines, there are two trunk lines serving Canada. One is the Trans-Canada Pipe Lines Limited system and the other is that of Westcoast Transmission Company Limited.

*Trans-Canada Pipe Lines Limited.*—The Trans-Canada pipeline, originating at the Alberta border near Burstall, Sask., follows a route eastward to a point near Winnipeg, where it branches into two lines. One continues eastward into Ontario through Thunder Bay, then arches through the clay belt before swinging south via North Bay to Toronto, where one branch goes westward into Ontario and another follows the shore of Lake Ontario and the St. Lawrence River to Montreal and the United States border. A number of lateral lines extend from the main transmission line to serve communities along the route. The second line from Winnipeg goes south to the United States boundary at Emerson where it connects with the Great Lakes Gas Transmission Company system, which is jointly owned by Trans-Canada and an American company. This pipeline follows a route south of Lake Superior through the Straits of Mackinac and east of Lake Michigan to reconnect with the Trans-Canada system at Sarnia, Ont. The Trans-Canada system is Canada's longest pipeline, having a total length of 3,797 miles including loop lines. The maximum daily gas delivery through the system in 1970 was 2,696,000 Mcf. Export sales averaged 573,000 Mcf. daily.

*Westcoast Transmission Company Limited.*—The supply of gas for Westcoast comes mainly from fields in northeastern British Columbia but significant quantities are gathered in northwestern Alberta. The main line from Fort St. John runs in a southerly direction to Vancouver and to the United States border at Sumas, B.C. An extension to its system from the Fort St. John area to the Fort Nelson area permits the pipeline system to pick up gas from the main areas stretching from Dawson Creek to the Kotocho Lake area, northeast of Fort Nelson. Total pipeline in the Westcoast system exceeded 1,500 miles in 1970.

*Alberta Natural Gas Company.*—Although the Alberta Natural Gas pipeline is only 107 miles long, it forms a vital link in a major gas export scheme which carries Canadian gas as far south as California. The pipeline connects with Alberta Gas Trunk pipeline at Crowsnest Pass on the Alberta border and extends across southeastern British Columbia to the international border near Kingsgate where it meets the Pacific Gas Transmission Company system, which transports the gas in the United States.

*Other Gas Pipelines.*—There are many other natural gas pipelines operating in Canada. Some systems are devoted exclusively to gathering gas in producing fields, while others receive gas from the main transmission lines and distribute it to gas customers. Several large systems combine elements of gathering, transmission and distribution. Among the larger systems, Inland Natural Gas Co. Ltd. distributes gas to a number of centres in interior and southern British Columbia. In west-central British Columbia, the Pacific Northern Gas Ltd. pipeline services communities and industries along a 435-mile route between the Westcoast main line at Prince George and the Pacific Coast cities of Prince Rupert and Kitimat. Canadian Western Natural Gas Company Limited and Northwestern Utilities, Limited serve markets in central and southern Alberta with a total of more than 8,200 miles of pipeline. The Saskatchewan Power Corporation delivers all gas sold in Saskatchewan; the 6,483-mile system transports and distributes gas to most of the populated areas of Saskatchewan. The Northern and Central Gas Corporation Limited has probably the most geographically widespread distribution system in Canada, as it distributes gas to industries and communities adjacent to the Trans-Canada system from Winnipeg as far east as the Montreal area. Two large utility companies serve the highly populated and industrialized areas of southern Ontario—the Consumer's Gas Company operates in the Toronto area, the Niagara peninsula and eastern Ontario while the Union Gas Company of Canada, Limited serves the southwestern corner of the province. These and many other systems make up the growing network of gas pipelines which serves domestic, commercial and industrial customers in all provinces except Prince Edward Island, Nova Scotia and Newfoundland.

**Oil Pipeline Statistics.\***—There were 40 oil pipeline companies operating in Canada at the end of 1970. Pipeline deliveries shown in Table 1 were made to non-pipeline carriers, foreign pipelines, and terminals including refineries and distribution centres.

### 1.—Pipeline Movements of Oil, 1967-70

Item	1967	1968	1969	1970
	bbl.	bbl.	bbl.	bbl.
<b>Receipts</b>				
Crude Oil and Pentanes Plus—				
Canadian.....	376,466,430	407,395,598	444,514,275	501,329,453
Imports.....	115,712,556	133,353,477	142,584,753	157,222,741
Liquefied Petroleum Gases and Products—				
Canadian.....	80,739,717	86,655,118	88,647,238	103,425,682
Imports.....	777,045	1,695,561	1,142,133	941,636
<b>Totals, Net Receipts.....</b>	<b>573,695,748</b>	<b>629,099,754</b>	<b>676,888,399</b>	<b>762,919,512</b>
<b>Deliveries</b>				
Crude Oil and Pentanes Plus—				
Canadian.....	336,877,897	365,771,371	381,576,598	413,630,458
Exports.....	150,601,709	169,032,483	202,534,888	243,478,357
Liquefied Petroleum Gases and Products—				
Canadian.....	78,396,933	84,380,794	84,947,050	98,520,006
Exports.....	3,213,579	3,785,007	5,052,811	5,788,495
<b>Totals, Net Deliveries.....</b>	<b>569,090,118</b>	<b>622,969,655</b>	<b>674,111,347</b>	<b>761,417,316</b>

Revenue and employee data shown in Table 2 are not complete; both revenue and employee figures have been omitted for some companies, since pipeline operation forms only a part of the activities of these establishments and the data are not separable. Daily average of net deliveries by trunk lines in 1970 was 2,086,075 bbl.; trunk lines barrel-miles amounted to 367,766,218,000 and the average miles per bbl. to 483.

\* Statistics of oil pipelines are given in greater detail in Statistics Canada monthly report *Oil Pipe Line Transport* (Catalogue No. 55-001).

### 2.—Operating and Financial Statistics of Oil Pipelines, 1967-69

Item	1967	1968	1969
Pipeline Mileage—			
Trunk lines..... No.	9,622	10,266	10,670
Gathering lines..... "	4,533	4,566	7,415 <sup>1</sup>
Daily Av. of Net Deliveries—			
Trunk lines..... bbl.	1,559,151	1,702,103	1,846,880
Gathering lines..... "			
Barrel-Miles—			
Trunk lines..... '000	255,065,842	282,529,273	319,983,661
Av. Miles per Barrel—			
Trunk lines..... No.	448	454	475
Property account..... \$	781,599,987	842,865,433	884,602,121
Long-term debt..... \$	333,417,502	342,697,617	375,798,342
Operating revenues..... \$	176,330,320	184,730,341	209,910,735
Operating expenses..... \$	42,557,614	45,582,852	49,640,341
Net income (after income tax)..... \$	59,958,766	57,573,570	60,380,306
Av. employees..... No.	1,543	1,459	1,428
Salaries and wages..... \$	13,067,526	13,218,733	13,740,240

<sup>1</sup> Includes 2,668 miles of gathering lines within producing fields; these data were not available for previous years.

**Gas Pipeline Statistics.**—As already stated, the natural gas transport industry became a significant factor in the Canadian economy in 1957 with the completion of the first of several extensive pipelines constructed to transport natural gas from the field or processing plant to distribution outlets. Consequently, the distribution industry also greatly increased deliveries to consumers from that time. Table 3 illustrates this expansion for the years 1967-70.

**3.—Receipts and Disposition by Natural Gas Utilities, 1967-70**

Item	1967	1968	1969	1970
	Mcf.	Mcf.	Mcf.	Mcf.
<b>Receipts</b>				
Transport system.....	950,653,601	1,091,493,113	1,290,673,477	1,524,660,728
Distribution systems.....	266,478,233	292,336,054	315,744,398	326,352,432
Imports.....	70,462,853	81,554,075	34,935,563	10,859,981
Other.....	68,882	490,805	883,288	1,442,595
Totals, Net Receipts.....	1,287,663,569	1,465,874,047	1,642,236,726	1,863,315,736
From storage.....	47,767,513	55,727,387	65,024,170	70,359,143
<b>Totals, Supply.....</b>	<b>1,335,431,082</b>	<b>1,521,601,434</b>	<b>1,707,260,896</b>	<b>1,933,674,879</b>
<b>Disposition</b>				
Sales to ultimate consumers.....	695,106,183	766,004,594	844,713,385	917,440,879
Exports.....	513,231,383	604,445,221	680,109,395	779,486,791
Other.....	1,018,769	6,801,914	13,297,187	19,757,170
Totals, Net Deliveries.....	1,209,356,335	1,377,251,729	1,538,119,967	1,716,684,840
To storage.....	52,663,942	57,757,675	66,300,359	93,088,213
Line pack fluctuation.....	-362,352	2,749,246	3,621,619	7,100,940
Gas used in system.....	55,449,312	62,403,117	75,325,254	85,663,284
Line losses and unaccounted amounts.....	18,323,845	21,439,667	23,893,697	31,137,602
<b>Totals, Demand.....</b>	<b>1,335,431,082</b>	<b>1,521,601,434</b>	<b>1,707,260,896</b>	<b>1,933,674,879</b>

## PART VI.—GOVERNMENT PROMOTION AND REGULATION OF TRANSPORTATION

The Federal Government plays a twofold role in the development of transportation services. One is the promotional role, ensuring the growth and development of the kind of transportation appropriate to the times; the other is a regulatory role, including economic regulation of rates and services and also technical regulation to meet safety requirements and for other purposes. Examples of promotion are the building of canals from the time of Confederation to the recent constructing of the St. Lawrence Seaway, the underwriting of railway development and branch-line extension, the establishment of Air Canada, the large investments in airports and aeronautical installations, and the building of the Trans-Canada Highway.

The Ministry of Transport and the various Crown agencies reporting to Parliament through the Minister of Transport have jurisdiction over canals, harbours, shipping, civil aviation and interprovincial and international railways. Interprovincial or international pipelines for carrying gas, crude oil or petroleum products are under the jurisdiction of the National Energy Board. Jurisdiction over for-hire interprovincial or international highway transport also rests with the Federal Government but these powers are at present exercised by the provincial highway transport boards under the federal Motor Vehicle Transport Act of 1954 (RSC 1970, c. M-14).

Railway regulation was developed in a period when railways enjoyed a virtual monopoly of transport in the country. Measures to protect the public against excessive charges, unjust discrimination and other objectionable monopoly practices, together with measures to ensure safe operations, have over the years subjected railways to the most comprehensive regulation of any Canadian industry. In the intervening years the rapid growth of road, air and pipeline services has ended the railway monopoly for a large part of the total traffic available and has placed the railways in a highly competitive situation.

A Royal Commission was appointed in 1959 to inquire into the railway rate structure and other problems. Its findings indicated a need to shift from regulating monopoly to maintaining a balance between the several competing modes of transport. Legislation based on the findings of the Royal Commission was passed by Parliament and received Royal Assent on Feb. 9, 1967. The statute, called the National Transportation Act, defines a national transportation policy for Canada looking to the achievement of an economic and efficient transportation system making the best use of all available modes of transportation at the lowest total cost. It established the Canadian Transport Commission to carry out the functions formerly performed by the Board of Transport Commissioners for Canada, the Air Transport Board and the Canadian Maritime Commission. In addition, the Act creates a framework within which the pipeline carriage of commodities other than oil and gas and the interprovincial and international motor transport undertakings can be regulated by the Canadian Transport Commission.

The general purpose of the Act is to create a situation in which the development of the transportation industry and the protection of the public against excessive or discriminatory charges are accomplished in the main by competition between modes rather than by regulation and control. The railways are relieved of some of the more onerous and outdated restrictions on their freedom to meet competition. On the other hand, a shipper who has no practical alternative to rail shipment can apply to have a maximum rate fixed for his goods by the new Commission. The Act also provides a procedure to allow the railways, under safeguards for the public interest, to abandon lines and withdraw passenger services where they are no longer needed.

**The Canadian Transport Commission.**—The Commission, created by the National Transportation Act (RSC 1970, c. N-17), was organized on Sept. 19, 1967 and succeeded to all the powers and duties of its predecessors, the Board of Transport Commissioners for Canada, the Air Transport Board and the Canadian Maritime Commission. The Commission is a court of record. It consists of a maximum of 17 members, of whom one is president and two are vice-presidents. One of the vice-presidents is charged with the superintendence of the work of the committees of the Commission and the other is charged with the superintendence of the programs of study and research of the Commission. For the purpose of performing its duties the Commission must establish committees, any of which may, in accordance with the rules and regulations of the Commission, exercise the powers of the Commission. Three of these committees—the Railway Transport Committee, the Air Transport Committee and the Water Transport Committee—are at



present functioning in respect of these several modes of transport. The finding or determination of the Commission upon any question of fact within its jurisdiction is binding and conclusive and no order or decision may be questioned or reviewed except on appeal to the Supreme Court of Canada upon a question of law or a question of jurisdiction with leave of that Court, or by the Governor in Council. However, a party to an application for a licence under the Aeronautics Act or the Transport Act may appeal to the Minister of Transport from a final decision of the Commission.

The Commission has jurisdiction under more than a score of Acts of Parliament, including the Railway Act, the Aeronautics Act and the Transport Act, over transportation by railway, by air and by inland water, and over communication by telephone and telegraph.

*Railway Transport.*—Under the Railway Act the jurisdiction of the Commission is, stated generally, in respect of construction, maintenance and operation of railways that are subject to the legislative authority of the Parliament of Canada, including matters of engineering, location of lines, crossings and crossing protection, safety of train operation, operating rules, investigation of accidents, accommodation for traffic and facilities for service, abandonment of operation and uniformity of railway accounting. The Commission also has certain jurisdiction over telephones and telegraphs, including regulation of the telephone tolls of Bell Canada and over tolls for the use of international bridges and tunnels.

Except for certain statutory rates, and subject to certain powers of the Commission to deal with rates that it finds to be contrary to public interest, the railways are free to charge rates as they wish. However, rates must be compensatory, and the Commission may prescribe tolls for captive shippers if such tolls take undue advantage of a monopoly situation favouring the railways.

*Air Transport.*—The Commission is responsible for the economic regulation of commercial air services in Canada and is also required to advise the Minister of Transport in the exercise of his duties and powers in all matters relating to civil aviation. The regulatory function relates to Canadian air services within Canada and abroad and to foreign air services operating into and out of Canada. It involves the licensing of all such services and the subsequent regulation of the licensees in respect of their economic operation and the provision of service to the public. The Commission issues regulations dealing with the classification of air carriers and commercial air services, accounts, records and reports, traffic tolls and tariffs, and various other matters. All regulations, rules and orders issued by the former Air Transport Board continue in force until repealed or amended by the Canadian Transport Commission.

On Oct. 20, 1966, the Minister of Transport tabled in the House of Commons a "Statement of Principles for Regional Air Carriers", which assigns to the Commission the responsibility for initiating measures to implement the policy set out therein. In this connection, the Commission has under review the route structures of regional air carriers.

The Commission takes an active part in the work of the International Civil Aviation Organization and, when appropriate, undertakes bilateral negotiations for the exchange of traffic rights. At present, Air Canada and CP Air are Canada's designated international scheduled carriers.

*Water Transport.*—Under the Transport Act, the Commission entertains applications for licences for ships to transport goods or passengers for hire or reward between places in Canada on the Great Lakes and on the Mackenzie and Yukon Rivers, except goods in bulk on waters other than the Mackenzie River. Before granting a licence, the Commission must be satisfied that public convenience and necessity require such transport. The Commission also has regulative powers over tolls for such transport.

*Shipping Subsidies.*—The Canadian Transport Commission also administers subsidies paid by the Federal Government for the maintenance of certain coastal and inland water

shipping services. The following statement shows the net amount of steamship subventions paid in connection with contracts made for the maintenance of essential coastal and inland water shipping services in the year ended Mar. 31, 1971.

<u>Service</u>	<u>Amount Paid 1970-71</u>
	<b>\$</b>
<b>West Coast—</b>	
Vancouver and northern British Columbia ports.....	500,929
Vancouver and West Coast Vancouver Island.....	189,998
Gold River and Zeballos.....	50,000
<b>Eastern Services—</b>	
Burnside and St. Brendans, Nfld.....	17,500
Carmanville and Fogo Island, Nfld.....	41,270
Cobbs Arm and Change Islands, Nfld.....	13,750
Dalhousie, N.B., and Miguasha, Que.....	26,500
Grand Manan and the mainland, N.B.....	259,000
Greenspond and Badger's Quay, Nfld.....	29,875
Halifax, N.S., and Cupids, Nfld.....	70,000
Halifax, N.S., and St. John's, Nfld.....	275,000
Île aux Coudres and Les Éboulements, Que.....	44,000
Île aux Grues and Montmagny, Que.....	9,000
Magdalen Islands, Que., Cheticamp and Halifax, N.S.....	26,000
Magdalen Islands and Montreal, Que.....	123,318
Montreal, Corner Brook and St. John's, Nfld.....	1,286,371
Montreal, Quebec and north shore ports, Que.....	732,000
Tobermory and South Baymouth, Ont.....	62,700
Pelee Island and the mainland, Ont.....	88,695
Pictou, N.S., Charlottetown, P.E.I., and Magdalen Islands, Que.....	389,481
Portugal Cove and Bell Island, Nfld.....	298,684
Prince Edward Island and Newfoundland.....	102,900
Prince Edward Island and Nova Scotia.....	1,070,000
Rivière du Loup and St. Siméon, Que.....	21,000
Sorel and Île St. Ignace, Que.....	50,000
Twillingate and New World Island, Nfld.....	67,108
Ste. Barbe, Nfld., and Blanc Sablon, Que.....	91,451
<b>TOTALS.....</b>	<b>5,936,531</b>

**The National Energy Board.**—The National Energy Act (RSC 1970, c. N-6) proclaimed Nov. 1, 1959, provided for the establishment of a five-member Board charged with the duty of assuring the best use of energy resources in Canada. In the performance of this function, the Board is responsible for the regulation of the construction and operation of the oil and gas pipelines that are under the jurisdiction of the Parliament of Canada, the tolls charged for transmission by oil and gas pipeline, the export and import of gas and the export of electric power, and the construction of the lines over which such power is transmitted. The functions and operations of the Board are covered in the Domestic Trade and Prices Chapter, pp. 1037-1038.

# CHAPTER XIX.—COMMUNICATIONS

## CONSPECTUS

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*The interpretation of the symbols used in the tables throughout the Year Book will be found on p. vii of this volume.*

## Section 1.—Telecommunications

### Subsection 1.—Telecommunications Media\*

Communications in Canada have been shaped to meet the needs of the country. Great networks of telephone, telegraph, radio and television facilities, inextricably bound together, provide adequate and efficient service which, in the era of electronic advancement, is under continual technological change and development. The familiar challenges of the country—its size, its topography, its climate, its small population—which have reared their heads in other areas of development, have had to be faced as well in the field of telecommunications. That these have been met is evidenced by the fact that today Canada possesses communications facilities and services which are second to none in the world and which are somewhat unique in structure. On the one hand there is a group of telephone companies acting in concert to provide national services and on the other there are two railway companies providing services, each of which is national in scope. These companies provide a most comprehensive total telecommunications network and almost all Canadians from the Arctic Coast to the 49th parallel and from St. John's in Newfoundland to Victoria in British Columbia can communicate with each other and with the rest of the world by the simple action of twisting a dial or pushing a button. Messages are carried by microwave, tropospheric scatterwave systems, land lines and high frequency radio bands.

The major telecommunications carriers in February 1972 established the Canadian Telecommunications Carriers Association to provide the framework for greater co-operation and an industry-wide approach to meeting new objectives in today's rapidly changing telecommunications environment. The Association consists of 23 founding telecommunications carrier organizations, each of which is represented on the Board by a senior officer. It brings together for the first time in one organization the 13 members of the Telephone Association of Canada, Canadian National and Canadian Pacific Telecommunications, Canadian Overseas Telecommunication Corporation, Telesat Canada, The Trans-Canada Telephone System, The Canadian Independent Telephone Association and four other telephone companies.

\* Revised by Canadian National Telecommunications, Ottawa.

The vital importance of telecommunications in Canada was recognized in the creation of the federal Department of Communications in 1969. This brought together into a single ministry the Telecommunications Policy and Administration Bureau (formerly with the Department of Transport), the Defence Research Telecommunications Establishment and the Canadian Overseas Telecommunication Corporation. Initially the Department concerned itself with a comprehensive inquiry into all aspects of Canada's information system. The "Telecommission" study, completed in the spring of 1971, will provide the Department with guidance in the formulation of national communications policies and programs. Supplementing the Telecommission is the Canadian Computer/Communications Task Force which has been charged to develop concrete plans for an integrated network of Canadian computer utilities designed to bring the benefits of computer power to all Canadians. These plans will be submitted to the Canadian Government early in 1972 to form the basis of impending legislation. The marriage of computing technology with the technology of telecommunications has been the latest innovative phase and has allowed computers to "talk" to other machines or to each other through communications links. Since then, the concept of multi-user sharing of a central data processing complex has been rapidly winning acceptance. The Department has also sponsored projects to help high schools and universities to use the latest communications and computer systems for exploring computer-assisted learning. One such project is CANUET, a study being conducted by Canadian universities to see if it is possible to design a computer-communications network to serve the collective needs of all or most universities.

Because of growing computer-communications requirements, the Trans-Canada Telephone System announced in March 1971 the building of a nation-wide digital communications system which is designed to directly link computers from coast to coast. Their system is to be built in three stages with the final phase being completed in 1976 at a cost of \$100,000,000. The first stage, to be completed in 1972 from Halifax to Vancouver, will be a digital system using existing transmission equipment. The second phase will be a high-capacity buried coaxial cable from Quebec to Windsor to be built between 1974 and 1976. The third stage is another digital system using existing microwave networks to add to the capacity of the first-stage coast-to-coast network. The Trans-Canada Telephone System has developed a mini-computer-based sub-system called SCCS (Software Controlled Communications Services) to act as translator between the network and the customers' computers. It will give data to the customer in whatever form he requires and it will accept data in any format irrespective of speeds or codes used. CN-CP Telecommunications will also convert portions of their transcontinental microwave system to digital systems, on a gradual basis. Most present transmission facilities are analogue or voice networks.

Another vital concern of the Department of Communications is the extending of communications to remote communities. The Department announced in 1970 that particular attention would be given to greater involvement of residents of remote communities in communications programs and projects. They proposed to open a permanent office in the Northwest Territories to ensure that planning and initiatives of telecommunications companies were developed in harmony with the desires of the residents of that region. One such program, called Comminterphone (Community Interaction Telephone), is under way for the Northwest Territories community of Rankin Inlet, more than 300 miles north of Churchill in Manitoba. It is a joint project of the Department of Communications, the Canadian Broadcasting Corporation, Bell Canada, and Bell-Northern Research Laboratories. Originally conceived by Bell-Northern Research Laboratories, Comminterphone will enable residents to share and exchange their feelings through the telephone to a CBC low-power relay transmitter which will broadcast in the AM radio band within a five-mile radius. Residents will be able to listen to their neighbours on the radio and, if they wish to express views, they simply dial a special telephone number to connect them into the radio broadcast.



**Public Telephone Service.**—Telephone service, local and long-distance, is provided by the telecommunications companies serving a total of 10,000,000 telephones across Canada, or almost one telephone for every two Canadians. The largest serving organization is the Trans-Canada Telephone System comprising eight telephone companies, either privately or publicly owned—the Newfoundland Telephone Company Ltd., the Maritime Telegraph and Telephone Company Ltd., The New Brunswick Telephone Company Limited, Bell Canada, the Manitoba Telephone System, Saskatchewan Telecommunications, Alberta Government Telephones and the British Columbia Telephone Company. In addition, there are almost 1,900 independent telephone companies providing private service in smaller communities across the country, many of which link into the Trans-Canada Telephone System for world-wide telephone access. Each company has a monopoly within its own territory and is subject to government regulations at the appropriate level—federal, provincial or municipal.

CN Telecommunications, the largest single system in Canada on the basis of area served, provides telephone service for residents in the Yukon and Northwest Territories, in parts of Newfoundland and in northern sections of British Columbia. In all, there are some 41,000 subscribers on the CNT telephone network. Without exception, all CNT exchanges are of the automatic dial type. Subscribers in the Far North have access to the outside world via CNT-operated long-distance toll centres at Whitehorse, Y.T., Fort Nelson, B.C., and Hay River and Inuvik, N.W.T. In some areas, such as the Mackenzie River delta, long-distance calls are handled by automatic toll ticketing similar to that used by the large telephone companies in the major southern Canadian centres. Plans are being carried out to bring Direct Distance Dialling service to the CNT telephone areas in northwest Canada in 1972 and to their telephone areas in Newfoundland in 1973.

The latest telephone innovation is the electronic switching system and the touch-tone telephone. The dial is replaced by push-buttons, each of which, when pressed, emits a tone that activates the exchange to contact the desired party. Electronic exchanges are now being used in many areas by the Trans-Canada Telephone System and CN-CP Telecommunications are using a similar touch-tone application in their Broadband Exchange Service (see p. 947).

**Public Telegraph Service.**—Canada's telegraph systems are operated by CN-CP Telecommunications. These companies operate telegraph offices, often amalgamated, in all 10 provinces and in the Yukon and Northwest Territories, and messages can be sent to and from any point in Canada or throughout the world via the overseas cable services (see pp. 960-962). At one time, much of the CNT and CPT revenue came from telegraph message traffic but the proportion now accounted for by such traffic is only about 10 p.c. Even so, the reduced telegraph message traffic is handled by the most up-to-date facilities. Messages are transmitted by teleprinter and facsimile equipment, and telegraph networks over which public messages flow are controlled by computers. In other words, messages are taken in and forwarded automatically in accordance with special programs stored in the computer's memory. The computer determines where the message is to be sent and sends it as soon as the circuits are free.

A recent (1970) experiment by CNT using cathode ray tube displays (CRT) in Toronto proved so successful that CRT display units will be installed during 1972 at the larger centres of Edmonton, Winnipeg, Ottawa, Quebec City, Saskatoon, Moncton and Halifax. Eventually, units will be installed in all medium-sized centres and the Toronto centre will be expanded to include four more displays, bringing the total to 16. Basically, CRT displays have television-like screens placed above a keyboard similar to a typewriter which is connected to the message-switching computer. As the operator receives a telephoned telegram message, she types it on the keyboard and it appears on the screen at the same time. She is able to read the message back to the caller and, with editing capabilities built into the displays, may make changes to the text if required. When the message is confirmed, the push of a button sends it into the message-switching computer for transmission to its destination.

**Telex Service.**—Telex, by far the largest teletypewriter service in Canada, is provided by CN-CP Telecommunications. Its network of 22,000 subscribers in Canada interconnects with the Western Union Telex network in the United States and with European and world-wide networks of more than 380,000 subscribers. Telex is a direct distance dial teleprinter system which permits a subscriber to directly dial any other subscriber on the network. A multiple address service was offered to Telex users in 1971 through CNT's message-switching computer complex located in Toronto.

TWX, similar to Telex, is provided by the major telephone companies. One transmission speed of 100 words a minute is offered on this service, the network for which consists of some 3,000 subscribers in Canada and interconnects with the United States network of more than 50,000 TWX subscribers and also with the European and world-wide Telex network outside the North America network.

A medium-speed Telex service is offered exclusively by CN-CP Telecommunications, operating in the speed range of 100 and 250 words a minute. The subscriber may own his computer or data sending-receiving equipment or he may lease it from CN-CP. This service provides a direct dial interconnection with subscribers anywhere in Canada to achieve a medium-speed range transfer of data from one location to another. The monthly rates to subscribers are the same as the standard-speed Telex service, that is, based on time used and distance. A six-level code, an eight-level code and punched computer cards can operate on the medium-speed service.

**Broadband Exchange Service.**—In 1967, CN-CP Telecommunications introduced an automatic switching system of the most advanced design, known as Broadband Exchange Service, which has moved Canada into a new era of extremely high-quality and very rapid communications. It is the first such system to operate in Canada and the second in the world. Broadband has more than tripled the fastest conventional machine-to-machine transmission. Furthermore, it has the capability, upon customer demand, of transmitting computer data at 51,000 words a minute, or more than 50 times faster than the top speed reached by conventional switched networks. The Royal Canadian Mounted Police was the first organization to be tied into this supersonic network, using it for intricate and high-quality transmission of fingerprints, photographs and documents between headquarters at Ottawa and divisional headquarters at Montreal, Toronto, Winnipeg, Edmonton, Regina, Vancouver, Fredericton, Halifax and St. John's.

The name, Broadband Exchange Service, is derived from the actual system since it is designed to permit various bandwidths, depending upon their communications needs. The broader the bandwidths, the faster the speed of transmission. CN-CP will offer four bandwidths: four and eight kilocycles for voice, facsimile and data (from 1,000 to 3,000 words a minute); 16 kilocycles for high fidelity radio program transmission and facsimile; and 48 kilocycles for high-speed computer-to-computer data exchange (51,000 words a minute) and high speed for facsimile. The four-kilocycle bandwidth is now operational and the other bandwidths will become available upon customer demand.

Transmission is carried by the CNT-CPT microwave system using frequency diversity techniques to provide a high degree of reliability. In other words, the transmission is carried twice both ways over different circuits at the same time, one being the back-up system for the other.

Each subscriber has in his office a voice-data subset—a most advanced telephone instrument which, with the flick of a button, can change from voice communication to transmission of computer data. The subset features push-button "dialling" and the customer, to reach a distant point, simply pushes the buttons in a series of seven digits. The first three digits pressed designate the distant exchange, the fourth digit indicates the desired bandwidth and the last three digits are for the line of the desired party. A re-ring button is included so that the customer may signal the distant party to revert to voice communication during or after sending computer data. A feature of Broadband is abbreviated keying, where customers may contact frequently called stations by pushing a

two-digit code instead of the normal seven. Broadband will make distant connections, including keying time, within five seconds, or two seconds on the special "hot-line" service. Actual connection time after keying or "dialling" is less than two seconds. Another feature of Broadband is conference calling, where a subscriber, by pushing a two-digit code, will automatically contact a pre-determined list of parties needed for the conference. Subscribers are charged on a "pay-as-you-use" basis.

**Multicom Service.**—This service, offered by the Trans-Canada Telephone System beginning in 1969, is a medium-to-high-speed data transmission system designed for the data processing industry. It transmits data at a variety of speeds from 2,400 to 50,000 bits a second—or as high as 60,000 words a minute. Transmission speeds can be increased as the need becomes evident. The data may be prepared in the form of either punched cards, punched paper tape, magnetic tape, disc storage or facsimile for optical scanning. As in Broadband Exchange Service, the caller presses the first three numbers to identify the serving office and the class of service; the last four digits identify the station being called. The initial system is made up of three high-speed switching centres at Calgary, Toronto and Montreal and five medium-speed switching centres at Vancouver, Calgary, Winnipeg, Toronto and Montreal. These switching centres are located in existing telephone switching centres but are more sophisticated than the regular telephone exchanges.

**Data-Phone Service.**—The major Canadian telephone systems provide Data-Phone Service which transmits data from punched cards, tape or magnetic tape between two or more machines or computers. It takes pulses from punched cards or tape-data machines and transforms them into tones which are sent over telephone circuits or leased private lines. The subscriber pays for the line used at regular long-distance rates. Data-Phone transmits at a speed of 1,200 bits a second or 1,000 words a minute.

**Data-Line Service.**—Data-Line Service was put into operation by the Trans-Canada Telephone System in late 1968, primarily for customers who wished to be connected to time-sharing computers. Using the normal telephone lines and exchanges, this service has the capability of transmitting computer data from 1,000 words a minute to a new offering in 1969 of 50,000 words a minute. The subscriber may use his own send-and-receive equipment or he may lease the equipment from the Trans-Canada Telephone System. Charges are based on a flat rate and depend upon the bandwidth used.

**Wide Area Telephone Service.**—Wide Area Telephone Service (WATS), operated by the Trans-Canada Telephone System, provides dial-type telephone communication from one WATS zone directly to another long-distance zone. In other words, the subscriber has a wider area that he may call directly without going through the long-distance operator or Direct Distance Dialling, and he may select any or all of the WATS zones he wishes. The customer has an access line to a dial exchange office for use only in originating WATS calls. INWATS, the reverse series to WATS, was introduced in 1969. Subscribers are charged a measured time-period rate and an additional hourly rate. The measured time-period is 10 hours of accumulated time in each month and the additional hourly rate applies to the time used above the measured time.

**Hot-Line Service.**—A new service offered in 1969 by CN-CP Telecommunications and Western Union is the Hot-Line Service where companies in Toronto or Montreal may talk to their offices in New York City by simply picking up the handset of the telephone. When a customer picks up his handset, the exchange equipment will seek out the proper telephone at the other end. If all the circuits are in use at the time of calling, the caller will hang up and as soon as a circuit is free the equipment will make the connection and ring the telephone set at each end. Subscribers are charged on a time-used basis.

**Private Wire Teletype Systems.**—A transformation has been gradually taking place in private wire systems. Most major Canadian firms with large communications require-



ments in years past found that private wire systems best suited their needs—that is, their own private teletype network rented to them by telecommunications companies. Although private wire services are still a significant part of business for the telecommunications industry, prime communications users who must communicate with many stations across the country have been moving to the newer computer-controlled transmission systems.

**Computer-Controlled Transmission Systems.**—CNT-CPT and the Trans-Canada Telephone System all have in operation store-and-forward message-switching computers which control the flow of message traffic. CNT pioneered in the uses of message-switching computers in Canada, having operated in this field since 1964. Trans-Canada Telephone System inaugurated a computer-controlled system in late 1968 and CPT put their system in operation in 1970. The telephone companies have switching centres located at Vancouver, Calgary, Edmonton, Regina, Winnipeg, Montreal and at Toronto, their primary centre. This computer-controlled system converts transmission codes and speeds and also determines where messages are to be sent.

CNT's system provides a switching medium for Air Canada, CP Air and CN administrative message traffic and also controls and transmits information on CN's reservation system. When a railway customer wishes to make a reservation, a computer card is marked and inserted into a card reader. Within seconds, a reply will return via a teleprinter confirming the reservation. Air Canada's "Notice to Airmen" (NOTAM) project is also handled by this system; particular flight plans, runway conditions and navigational aids are stored in Air Canada's computer and given out to pilots across the country when a special code is dialled on teletype machines. A third-generation computer installed for CNT in 1968 is performing major store-and-forward message-switching functions for the Atmospheric Environment Service. When the computer finds a weather report from any of the 500 weather stations throughout Canada, it will tell the station equipment to transmit the report into the computer and it then determines where and at what time of the day the information is to be sent.

Commercial telegrams are switched across the country by CNT's third-generation message-switching computer complex. This undoubtedly is the most important development in telegraph service since Morse.

A new time-shared, computer-directed data and message system called Telenet was introduced by CN-CP Telecommunications in 1971. The Telenet system concept is a number of subscriber networks controlled by central computers. The message-switching computer centres will handle many customers but each customer's network is completely private. In its initial phase, Telenet offerings will be confined to message switching and related features such as speed and code conversions, message storage and retrieval, high-speed data handling, interface with customer-owned computers and message refile. A single message may be transmitted for delivery to as many as 32 destination stations by one group-routing indicator at one time. Two levels of priority are recognized by the computers. Messages marked "quick" are handled immediately by the system. Message-switching computers are located at CNT offices in Toronto and CPT offices in Montreal and all Canadian subscribers' requirements are routed by one of these centres. Future plans call for switching-computer centres at Vancouver, Edmonton, Winnipeg and Halifax. Various options and capabilities of Telenet will enable CN-CP to custom design a system to meet specific needs of individual subscribers.

**Domestic Commercial Satellite Communications Facilities.**—Increasing activity in the Canadian Arctic and sub-Arctic where communities are being expanded and new ones formed, as well as forecasts of the telecommunications needs of all of Canada, prompted the telecommunications industry and the Federal Government to consider a domestic satellite system. In 1966, a proposal from Niagara Television Limited and the Power Corporation of Canada Limited was submitted to the (then) Board of Broadcast Governors for a satellite system to distribute television programs for a third national television network. In March 1967, the Trans-Canada Telephone System and CN-CP



Telecommunications proposed to the Government a domestic satellite telecommunications system to carry television, telephone calls, data and other telecommunications services. In that same year, RCA Victor Company Limited issued a proposal giving definite design criteria for a communications satellite within the capabilities of Canadian industry. In 1968, the Northern Electric Company announced an agreement with Canadair Limited and Hughes Aircraft of California to form a group interested in designing and building equipment for satellite communications. For some time the subject was also under study by the Ministry of Transport and the result of this study was presented to the Government in 1967. By July of 1967, an intense interest had developed in the potential of a domestic satellite system and the Prime Minister announced the creation of a task force, under the direction of the Science Secretariat, to advise on satellite policy in general and, in particular, on the use of satellite technology for domestic communications.

Following the release on Mar. 28, 1968, of a White Paper based to a large extent on the recommendations of the Task Force on Satellite Policy, the Government of Canada established Telesat Canada by Act of Parliament (RSC 1970, c. T-4), which came into force by proclamation on Sept. 1, 1969, to establish Canadian Domestic Satellite Telecommunication Systems providing telecommunications services on a commercial basis. Telesat Canada is not a Crown corporation but is designed to be a commercial company owned jointly by the Government of Canada, the telecommunications common carriers, and the general public, according to the provisions of the Act. The annual report of the company is tabled in the House of Commons by the Minister of Communications.

Plans are proceeding for a target launch date by early 1973 of the first satellite, to be named *Anik*, an Eskimo word meaning "brother". The initial system, consisting of some 35 ground stations and a satellite, will be designed to provide television and radio distribution in both English and French to many parts of Canada not now served by terrestrial facilities; to provide telephone communications in Northern Canada; and to supplement existing microwave systems serving Southern Canada. The satellite will be capable of simultaneous transmission of all these services from stationary orbital positions to virtually all of Canada in association with the ground stations. Present plans are to lease services to the Trans-Canada Telephone System, CN-CP Telecommunications and the Canadian Broadcasting Corporation.

When present plans materialize, Canada will be among the first nations in the world to operate a domestic commercial satellite communication system. The whole of Canada is visible in space from that part of the equatorial orbital plane lying between 96° and 116° West Longitude. This forms a 20°-arc and contains the satellite positions most desirable for Canadian domestic service. The satellite or satellites maintain a stationary orbit at an altitude of 22,300 miles which means that they will rotate with the earth every 24 hours and therefore at any particular time of the day be over the same spot on earth.

Basically, satellite communication is just one long microwave link. The clarity and strength of transmission provided by a satellite will be comparable to that of existing microwave systems; only with respect to time required for transmission from an originating earth station to a satellite and back to another receiving earth station will there be a noticeable difference. Because of the 22,300-mile altitude of the satellite, the two-way transit time will be about 600 milliseconds or six tenths of a second. This delay will be of no concern for one-way transmission services such as television, but it must be taken into account in the case of two-way voice circuits. To minimize the time effects, there must be an avoidance of tandem connections on space facilities and, wherever possible, the operation of voice circuits with one direction via satellite and the other via ground facilities.

The first-generation satellites will end their life cycle about five years after they are put into operation and undoubtedly additional satellite capacity will be required by then. The scope, capacity and design of the second-generation Canadian satellite will depend on technical developments and traffic requirements during the intervening years. Canada's microwave, land-line and troposcatter systems will continue to be the backbone of tele-

A tracked vehicle on access road to a microwave site in the Yukon Territory. →

Route of the recently constructed combination microwave - scatterwave telecommunication system linking the Yukon and the Northwest Territories. ↓



communications services for many years to come but satellite communications, properly integrated with land facilities, will make it possible to reach all areas to which service has not yet been economically feasible.

**International Satellite Communications.**—Since the *Telstar* satellite was launched in 1962, Canada has made use of international satellites to connect to broadcast systems in other continents. In 1964, Canada became one of the 20 charter members of *Intelsat*, the International Telecommunication Satellite Consortium, which now numbers 68 countries. Thus, Canada is a joint owner of *Intersat* satellites and participates in the global satellite system established by *Intelsat*.

Acting through the Crown-owned Canadian Overseas Telecommunication Corporation, Canada is currently using the *Intelsat* satellites for intercontinental telephone, data and television relays to and from the domestic communications systems of CN-CP Telecommunications and the Trans-Canada Telephone System.

**Public and Private Commercial Microwave Facilities.**—Canada, because of its population distribution and the vast areas served by microwave links, ranks second highest among the world's users of microwave communications systems on a per capita/per mile

basis. Increasing demand for television outlets has necessitated the extension of microwave routes to provide interconnections for the CBC English and French and private networks and these routes have been upgraded to permit the transmission of colour television. With the use of more automated equipment by industry and various services, associated data and control information must be transmitted at rapid speeds over microwave radio-relay to widespread areas throughout the country.

*Railways.*—CNT and CPT have placed in operation a microwave system extending from Moncton, N.B., to Nanaimo, B.C., which is used for television, telephone and data relay purposes. On its own, CNT has microwave facilities linking Newfoundland to the Maritime Provinces at Sydney, N.S., and across the Strait of Belle Isle to Labrador and to Quebec at Blanc Sablon. In addition, CNT has installed a microwave system from Grande Prairie, Alta., through the Yukon Territory to Alaska which carries telephone and data traffic and serves both civil and military organizations in the area. In co-operation with Alberta Government Telephones, a combination microwave and tropospheric scatterwave system connects Alberta through the Northwest Territories to Lady Franklin Point on Victoria Island. A \$3,000,000 construction program was completed in 1971 by CNT which provides a combination microwave-scatterwave system linking the Yukon Territory with the Northwest Territories. Microwave is used from Whitehorse to Keno and a tropospheric scatterwave system bridges the Richardson Mountains from Keno to Arctic Red River. From there microwave is used north to Tuktoyaktuk. A scatterwave system hurls transmission up to the troposphere where it is bounced back to the next station some 600 miles away. Microwave systems are also being built by CNT between Fort Providence and Fort Simpson and between Inuvik and the communities of Old Crow and Fort Macpherson.

The Quebec North Shore Labrador Railway has developed a microwave system extending into northern Quebec to provide communication for mining operations and to serve some civil communication purposes. Ontario Northland Railways operates microwave installation connecting northern Ontario and James Bay, also for purposes of military and civil communication. The British Columbia Railway makes extensive use of 6,000 Mc/s microwave facilities linking Vancouver with Prince George and Dawson Creek, B.C.

*Telephones.*—The Trans-Canada Telephone System (TCTS), comprised of eight provincial and private telephone companies, collectively provides two transcontinental microwave systems for the purpose of carrying telephone, television, data and other types of communication services. Major expansion has taken place in each province during the past few years, greatly increasing the number of areas served and system capacity of all types of communications requirements. Tropospheric scatterwave systems are used to provide beyond-line-of-sight transmissions, especially to the Far North for civil and military applications. The British Columbia Telephone Company has a major trunk system from Prince Rupert to Prince George, which is linked through Prince George with the transcontinental system in the southern part of the province. A microwave system links Mill Village communication satellite earth station near Liverpool, N.S., within the trunk route system of the Maritime Telegraph and Telephone Company.

The TCTS announced plans in 1971 to build three digital networks—two of them on existing coast-to-coast microwave facilities. The three-stage program will be completed by 1976 at a cost of \$100,000,000. Digital networks are primarily for data transmissions (see p. 945).

*Television.*—The two main television interests in Canada—the Canadian Broadcasting Corporation and CTV Television Network Limited—lease common-carrier microwave facilities for the relay of television programs from coast to coast. In addition, studio transmitter links are used by various television stations where the television transmitted is located some distance from the studio and interconnection is required. In sparsely populated areas, off-the-air pick-up signals from primary television stations are sometimes relayed by microwave to rebroadcasting sites. Microwave facilities are also used in con-



nection with portable and mobile television pick-up where program material is intended for the main studio. Both network facilities and local studio transmitter links have been upgraded to enable the transmission of colour television.

*Industrial.*—Although many firms use commercial communications facilities on a lease basis, some organizations have installed private microwave systems to provide voice, teletype and control data for various purposes. The British Columbia Hydro and Power Authority, the Calgary Power Corporation, The Hydro-Electric Power Commission of Ontario, the Quebec Hydro-Electric Commission and Manitoba Hydro use a considerable number of microwave relay systems for important control and communications purposes. For example, Hydro-Quebec has greatly expanded its hydro power generating capacity and new microwave routes have been added to permit a central control of the various generating stations. The British Columbia Hydro and Power Authority has installed facilities to link the Vancouver area with Peace River, Mica Creek and the Bonneville Power Administration in the State of Washington as well as system control in the Vancouver area. Ontario Hydro has constructed an extensive microwave system to provide important control, monitoring and communications with all their facilities in southwestern Ontario.

*Instructional.*—The Department of Communications has opened the 2,600 MHz. microwave band for use by the various educational authorities in Canada for instructional TV systems. Some systems have now been licensed and others are being planned. The largest system is at Calgary, which provides television communications to 24 schools. The Province of Ontario established the Ontario Educational Communications Authority and is in its second season of broadcasting on UHF channel 19 in Toronto; other UHF educational television channels are to be established across the province.

**Miscellaneous Radio Communication Services.**—In addition to radio communication services provided by the Federal Government, extensive radio communication systems have been established in the provinces and territories, mainly for police, highway and forestry protection purposes. Municipal government departments continue to increase their use of radio to facilitate operations, particularly with their vehicles—police, fire, engineering, etc. Such services as taxi, heavy construction, ready-mix concrete, oil pipeline construction and operation, veterinarian and rural medical also make extensive use of radio for communication purposes.

Public utilities, power companies, provincial power commissions, oil exploration and mineral development organizations have expanded considerably their use of radio in both mobile and point-to-point radio fields.

The telecommunications companies provide an extension of telephone service, by radio, to suitably equipped vehicles. This service is available in all major cities in Canada and along many of the nation's arterial highways. Restricted common-carrier mobile radio service (which does not permit interconnection with the over-all telephone system but only with specific dispatchers) is available in most of the larger cities, as well as in a number of the smaller urban centres. It is provided by telephone companies as well as by other organizations. Low-power radio stations may be licensed to permit short-distance personal and private business radio-telephone communications.

### Subsection 2.—Telephone and Telegraph Statistics

**Telephone Statistics.**—In 1970 there were 1,716 telephone systems operating in Canada compared with 1,888 in 1969; of these systems, 1,376 reported in 1970 and 1,618 in 1969. Co-operative systems in rural districts decreased in number from 1,486 to 1,256 in the same comparison and incorporated companies from 92 to 84. The largest of the incorporated companies, Bell Canada, which operates throughout the greater part of Ontario and Quebec and in Newfoundland and the Northwest Territories, served 62 p.c. of all the



telephones in Canada in both years and the British Columbia Telephone Company, also shareholder-owned, served 10 p.c. of the total in 1970. The number of telephones in use continues to increase at the rate of about 5 p.c. annually.

### 1.—Pole-Line and Wire Mileage and Number of Telephones in Use, 1961-70

Year	Systems Reporting	Route Mileage	Length of Wire	Telephones in Use			
				Business	Residential	Total	Per 100 Population
	No.	miles	miles	No.	No.	No.	No.
1961.....	2,509	306,167	26,986,478	1,729,599	4,284,416	6,014,015	32.6
1962.....	2,430	314,523	28,930,413	1,816,895	4,512,553	6,329,448	33.7
1963.....	2,296	284,202	31,267,977	1,910,178	4,746,435	6,656,613	34.9
1964.....	2,421	281,036	33,731,622	2,016,182	5,003,192	7,019,374	36.1
1965.....	2,330	283,478	36,666,557	2,142,256	5,302,815	7,445,071	38.1
1966.....	2,130	290,936	40,586,184	2,286,753	5,595,875	7,882,628	38.9
1967.....	2,057	295,532	43,959,453	2,423,308	5,935,115	8,358,423	40.5
1968.....	1,772	298,000	48,110,000	2,557,059	6,260,787	8,817,846	42.1
1969.....	1,618	297,000	53,138,000	2,719,317	6,576,731	9,296,048	43.7
1970.....	1,376	297,727	56,230,618	2,853,601	6,896,410	9,750,011	45.2

### 2.—Telephones in Use, by Province, 1970

Province or Territory	On Individual Lines		On 2-and 4-Party Lines		On Rural Lines		Public Pay Telephones
	Business	Residential	Business	Residential	Business	Residential	
	No.	No.	No.	No.	No.	No.	
Newfoundland.....	12,368	55,029	1,390	26,298	65	2,549	1,147
Prince Edward Island..	2,441	12,656	69	1,871	236	7,951	221
Nova Scotia.....	15,814	132,023	653	13,986	911	29,296	3,446
New Brunswick.....	19,141	91,796	484	20,983	480	20,971	1,897
Quebec.....	211,443	1,205,930	8,799	189,290	4,173	113,420	21,628
Ontario.....	299,758	1,642,391	4,109	322,547	6,669	177,436	27,138
Manitoba.....	41,109	211,661	193	14,487	2,590	41,382	3,101
Saskatchewan.....	32,868	177,465	1	5	2,866	59,287	3,238
Alberta.....	65,529	365,486	1,722	42,012	456	9,006	5,834
British Columbia.....	82,834	323,677	428	216,422	2,643	68,457	6,950
Yukon Territory.....	1,281	1,021	202	2,191	—	—	76
Northwest Territories..	1,681	3,269	193	1,015	—	—	118
<b>Canada.....</b>	<b>756,267</b>	<b>4,222,404</b>	<b>18,243</b>	<b>851,107</b>	<b>21,089</b>	<b>529,755</b>	<b>74,794</b>
	Private Branch Exchanges		Extensions		Mobile	Total	Telephones per 100 Population
	Business	Residential	Business	Residential			
	No.	No.	No.	No.			
Newfoundland.....	13,797	—	9,535	12,887	186	135,251	26.0
Prince Edward Island..	2,416	—	3,360	2,922	—	34,143	31.0
Nova Scotia.....	29,110	—	27,843	31,138	39	284,259	37.0
New Brunswick.....	19,312	—	20,338	28,599	1,851	225,852	36.1
Quebec.....	352,116	19	185,545	323,409	551	2,616,323	43.4
Ontario.....	541,894	69	246,419	577,806	1,244	3,847,480	49.6
Manitoba.....	49,421	—	27,181	44,812	126	436,063	44.4
Saskatchewan.....	33,187	—	20,284	37,073	236	366,510	39.6
Alberta.....	97,528	—	55,141	95,985	3,532	742,231	45.7
British Columbia.....	130,495	—	74,040	137,629	2,819	1,046,394	48.0
Yukon Territory.....	876	—	814	341	31	6,833	40.2
Northwest Territories..	1,024	—	853	455	64	8,672	24.8
<b>Canada.....</b>	<b>1,271,176</b>	<b>88</b>	<b>671,353</b>	<b>1,293,056</b>	<b>10,679</b>	<b>9,750,011</b>	<b>45.2</b>

The major telephone systems record completed calls on representative days throughout the year and on this basis estimate the number of local conversations which, added to the actual count of long-distance calls, gives their total volume of business. Estimates are included for the smaller systems.

### 3.—Local and Long-Distance Calls and Average Calls per Capita and per Telephone, 1961-70

Year	Local Calls	Long-Distance Calls	Total Calls	Total Calls per Capita	Average Calls per Telephone		
					Local	Long-Distance	Total
	'000	'000	'000	No.	No.	No.	No.
1961.....	10,242,657	226,258	10,468,915	568	1,703	37.6	1,741
1962.....	10,558,129	250,239	10,808,368	576	1,668	40.0	1,708
1963.....	11,065,030	257,548	11,322,578	593	1,662	39.0	1,701
1964.....	11,658,113	281,239	11,939,352	614	1,661	40.1	1,701
1965.....	12,138,243	301,614	12,439,857	628	1,630	40.5	1,671
1966.....	12,846,178	323,325	13,169,503	650	1,630	41.1	1,671
1967.....	13,053,115	357,414	13,410,529	650	1,562	42.7	1,605
1968.....	13,993,601	388,007	14,381,608	687	1,587	44.0	1,631
1969.....	14,596,659	434,292	15,030,951	707	1,570	47.0	1,617
1970.....	15,436,847	458,397	15,895,244	737	1,583	47.0	1,630

The steady increases in capitalization, revenue and expenditure of telephone companies together with the number of employees and salaries and wages paid are shown for the years 1961-70 in Table 4. Provincial figures for 1970 are given in Table 5.

### 4.—Financial Statistics of Telephone Systems, 1961-70

Year	Capital Stock <sup>1</sup>	Long-Term Debt	Cost of Plant	Revenue	Expenditure	Full-Time Em- ployees	Salaries and Wages <sup>2</sup>
	\$	\$	\$	\$	\$	No.	\$
1961.....	879,424,405	1,134,866,419	2,926,527,459	679,306,194	590,428,169	56,322	254,207,734
1962.....	1,012,220,461	1,151,169,891	3,192,229,994	733,294,451	636,542,442	58,091	269,284,720
1963.....	1,207,147,639	1,144,518,306	3,510,479,137	787,374,716	687,272,971	58,416	288,772,585
1964.....	1,328,991,574	1,241,015,012	3,808,675,460	860,207,384	746,503,960	60,829	306,454,089
1965.....	1,380,189,560	1,348,911,971	4,127,386,680	948,177,117	821,204,894	63,467	335,364,967
1966.....	1,575,983,073	1,667,390,608	4,544,521,877	1,048,837,049	912,452,623	68,154	374,372,064
1967.....	1,624,202,963	1,898,269,911	5,010,998,761	1,163,855,575	975,438,821	68,431	408,066,433
1968.....	1,657,588,452	2,089,385,565	5,467,325,999	1,268,387,079	1,095,762,627	66,699	436,542,971
1969.....	1,702,556,224	2,233,048,410	5,988,210,845	1,404,325,403	1,227,420,272	66,578	479,067,517
1970.....	1,827,746,299	2,522,039,694	6,571,027,935	1,568,725,947	1,366,644,923	68,334	540,674,013

<sup>1</sup> Includes premium on capital stock.

<sup>2</sup> Full-time and part-time.

**5.—Financial Statistics of Telephone Systems, by Province, 1970**

Province or Territory	Capital Stock <sup>1</sup>	Cost of Plant	Revenue	Expenditure	Full-Time Employees	Salaries and Wages <sup>2</sup>
	\$	\$	\$	\$	No.	\$
Newfoundland.....	26,191,582	62,475,742	18,155,257	15,675,154	894	10,102,885
Prince Edward Island...	5,205,866	18,069,767	3,911,743	3,499,992	221	1,095,521
Nova Scotia.....	53,870,799	189,116,376	44,696,511	38,050,053	2,549	15,763,157
New Brunswick.....	47,609,760	171,617,949	41,155,644	35,386,056	2,018	13,689,658
Quebec.....	1,413,773,635	4,109,347,136	1,005,249,928	867,357,245	18,835	142,554,974
Ontario.....	23,455,118	83,583,980	22,739,459	17,539,486	20,206	175,882,969
Manitoba.....	—	297,040,645	60,311,069	57,872,492	3,862	28,211,466
Saskatchewan.....	53,765,521	280,143,672	58,905,732	47,058,508	2,695	19,318,380
Alberta.....	1,486,538	609,713,838	136,071,882	125,913,753	7,615	59,544,353
British Columbia.....	202,382,480	749,918,800	177,528,722	158,283,184	9,429	74,372,532
Northwest Territories...	—	—	—	—	10	138,118
<b>Canada.....</b>	<b>1,827,746,299</b>	<b>6,571,027,935</b>	<b>1,568,725,947</b>	<b>1,366,644,923</b>	<b>68,334</b>	<b>540,674,013</b>

<sup>1</sup> Includes premium on capital stock.<sup>2</sup> Full-time and part-time.

**Telegraph Statistics.**—There were nine telegraph and cable companies operating in Canada during 1970, but, as already stated, telegraph service is provided mainly by the telecommunications departments of the two major railway companies (see also p. 946). The number of telegrams sent continues to decline year by year, giving way to other types of message transmission, but the number of cablegrams sent has been rising. The business of telegraph and cable companies appears to be changing from one of handling messages directly to one of leasing equipment for the transmission of messages by others. Revenues from the latter source have been rising over the past several years and have been the main factor in the steady advance in total operating revenues. Total cost of property and equipment for all telegraph and cable companies was \$570,555,592 in 1970, increasing from \$545,694,618 in 1969.

**6.—Summary Statistics of Canadian Telegraphs, 1961-70**

Year	Operating Revenues	Operating Expenses	Net Operating Revenue	Pole-Line Mileage	Wire Mileage	Employees <sup>1</sup>	Telegrams	Cablegrams <sup>2</sup>	Money Transfers
	\$	\$	\$	miles	miles	No.	No.	No.	\$
1961.....	64,053,626	51,735,006	12,318,620	48,675	524,720	9,997	15,138,706	2,662,931	25,041,156
1962.....	71,379,074	56,451,679	14,927,395	48,381	534,074	10,069	14,451,416	2,606,103	28,060,167
1963.....	73,611,349	60,256,828	13,354,521	49,536	532,551	9,826	13,338,941	2,668,796	30,133,340
1964.....	78,743,332	63,865,422	14,877,910	49,730	537,438	9,431	12,946,062	2,751,623	32,378,177
1965.....	86,087,398	68,869,393	17,218,005	49,623	544,759	9,270	12,788,585	3,037,939	38,865,118
1966.....	95,478,146	74,684,229	20,793,917	50,538	547,652	9,161	11,455,849	3,232,073	36,139,334
1967.....	104,504,533	78,715,818	25,788,715	50,161	557,354	8,961	10,474,908	3,575,806	36,014,438
1968.....	116,665,518	86,425,655	30,239,863	49,497	573,276	8,687	9,672,993	4,056,505	45,163,493
1969.....	126,567,393	92,770,393	33,797,535	49,294	563,229	7,860	7,618,280	4,234,632	41,654,407
1970.....	136,947,770	100,067,905	36,879,865	49,813	553,644	7,678	6,905,695	4,729,337	57,866,973

<sup>1</sup> Excludes commission operators.<sup>2</sup> Includes wireless messages and transatlantic Telex messages.**Subsection 3.—Federal Control over Telecommunications and Federal Civil Telecommunications Services\*****Federal Control over Telecommunications**

The Department of Communications was established on Apr. 1, 1969, under the authority of the Government Organization Act of that year, and operates under authority of RSC 1970, c. C-24. The duties, powers and functions of the Minister of Communications extend to and include all matters relating to telecommunications over which the Parliament

\* Prepared by the National Telecommunications Branch, Department of Communications, Ottawa.

of Canada has jurisdiction, not by law assigned to any other department, branch or agency of the Government of Canada; and the development and utilization generally of communication undertakings, facilities, systems and services for Canada. He is responsible for the administration of the Telegraphs Act (RSC 1970, c. T-3), the Radio Act (RSC 1970, c. R-1), and the Canadian Overseas Telecommunication Corporation Act (RSC 1970, c. C-11).

Telephone and telegraph companies incorporated under the Federal Parliament are subject to the jurisdiction of the Canadian Transport Commission in the matter of rates and practices under the provisions of the Railway Act. Previously the CTC regulated rates only in those cases in which a charge was made to the general public; recent amendments to the Railway Act extend the jurisdiction of this body to cover rates charged for private wire services as well. International telegraph and telephone communications are handled subject to the International Telecommunication Convention and its Regulations, or under regional agreements, or both. Overseas cables landed in Canada are subject to the External Submarine Cables Regulations under the Telegraphs Act.

Radiocommunications in Canada, except for those matters covered by the Broadcasting Act, are regulated under the Radio Act and Regulations, and the Canada Shipping Act and Ship Station Radio Regulations. Amendments to the Radio Act in the past year provide for the licensing of Canadian earth and space stations engaged in space communications services. Radiocommunications in Canada are administered in accordance with the International Telecommunication Convention and Radio Regulations annexed thereto; the International Civil Aviation Convention; and the International Convention for the Safety of Life at Sea. A number of Canadian-United States conventions and agreements are also in effect, such as: the Convention for the Promotion of Safety on the Great Lakes by means of Radio; the Convention relating to the operation by citizens of either country of certain radio equipment or stations in the other country; the Agreement relating to the Co-ordination and Use of Radio Frequency above Thirty Megacycles per Second; the Television and FM Agreements; and the Agreement relating to the operation in either country of radiotelephone stations licensed in the Citizens Radio Service of the United States and the General Radio Service of Canada. In addition, Canada is a party to the North American Regional Broadcasting Agreement.

Under the Broadcasting Act of 1968, the Canadian Radio-Television Commission issues licences for broadcasting undertakings. However, the licences are not issued unless the Minister of Communications certifies to the Commission that the applicant has satisfied the requirements of the Radio Act and regulations thereunder, and has been or will be issued a Technical Construction and Operating Certificate under that Act. Broadcasting undertakings include radio (AM and FM) and television broadcasting stations, community antenna television (CATV) systems, and network operations. The technical rules and procedures for the allocation of frequency channels and installation and technical operation of broadcasting station facilities are set forth in the Department's *Broadcast Procedures and Radio Standards Specifications*. These documents form the basis for determining the acceptability of applications for Technical Construction and Operating Certificates and for the control of the technical operation of broadcasting undertakings. The availability of the technical facilities for broadcasting is subject to the terms of the North American Regional Broadcasting Agreement, the Canadian-U.S.A. Television Agreement and the Canada-U.S.A. FM Agreements.

Telesat Canada, a Corporation created by an Act of Parliament, June 27, 1969 (RSC 1970, c. T-4), is responsible for Canada's proposed domestic communications satellite. It has a unique form of financing—the Government, designated common carriers, and the general public will each be offered about one third of its shares. The Corporation reports to Parliament through the Minister of Communications. (See also p. 950.)

**Licensing and Regulation of Radio and TV Stations.**—Licensing is the Federal Government's method of maintaining control over radiocommunications in Canada. Under the Radio Act, radio stations (other than those used in broadcasting undertakings) employing any form of Hertzian wave transmission, including television and radar, are re-



quired to be licensed by the Department of Communications, unless exempted by regulation. There are six classes of radio station licence: Coast, Land, Mobile, Ship, Earth and Space. Various categories of service may be authorized under each of these classes; for example, Public Commercial Service, Private Commercial Service, Amateur Experimental, etc. The number of licences in force for radio stations in Canada in the year ended Mar. 31, 1971 was 256,327 compared with 245,789 in 1969-70. These figures include stations operated by federal, provincial and municipal government departments and agencies, stations on ships and aircraft registered in Canada and stations in land vehicles operated for both public and private purposes, but they do not include stations in the broadcasting service. Following are comparative figures for the licensing periods 1969-70 and 1970-71:—

<i>Item</i>	<i>1969-70</i>	<i>1970-71</i>
New applications received.....	31,509	29,125
Authorization granted.....	27,787	23,537
Licence amendments.....	25,166	22,272
Licence cancellations.....	16,873	18,198
Total licences in force.....	245,789	256,327
Net increase in licences in force over preceding year.....	16,004	10,538

Radio Standards in general are drawn up in consultation with the electronic industry and users of radio, taking into account such technical factors as those which affect frequency spectrum utilization, reliability of apparatus, and compatibility under conditions of service. To facilitate the development of standard specifications, and for testing necessary to determine whether apparatus complies, the Department of Communications maintains an engineering laboratory.

Licensing involves the assigning of specific frequencies to each station. Bands of frequencies are allocated for various types of services, often on a shared non-interference basis. Frequency selection, compatibility evaluation, domestic registration (computerized data base with a file size of more than 51,000,000 characters), and notification with the International Frequency Registration Board (IFRB) of the International Telecommunications Union at Geneva are carried out to ensure efficient use of the spectrum. Assignments are made in keeping with international and domestic statutes and regulations, regional agreements and domestic policies. The IFRB is notified of frequency assignments for technical examination and for inclusion, with appropriate "in-service" dates, in the Master International Frequency Register so that Canadian assignments will receive international recognition and be given protection from interference by foreign stations. "In service" dates are necessary when determining prior right to the use of particular frequencies.

The enforcement activities of the Telecommunications Regulation Branch, Department of Communications, include the technical inspection of all radio stations including the monitoring and measurement of their radiated signals to ensure compliance with the regulations and conditions of licensing; the location and suppression of radio interference; the technical examination of candidates for the various classes of certificates of proficiency in radio which must be held by the operators of radio stations; and the direction of prosecutions in the courts. These functions are carried out through personnel located at 34 radio regulations inspection offices, 10 fixed monitoring stations, seven mobile monitoring vehicles, and six regional spectrum observation centres across Canada. Through decentralization, the six regional offices share with headquarters in the direction of day-to-day activities of the Telecommunications Regulation Branch, and the development of suitable programs and facilities for the recruitment and training of necessary technical personnel for the Department.

### **Federal Civil Telecommunications Services**

The Department of Communications is made up of the Communications Research Centre formed from the Department of Defence Research Telecommunications Establishment, the Telecommunications Management Bureau transferred from the Ministry of Transport, and the Policy, Plans and Programs Branch. The work of the Research Centre

ranges from fundamental studies on materials and circuits to the design of advanced high-reliability avionics and aerospace electronic systems. The Telecommunications Management Bureau is responsible for: (1) development of policy and plans with respect to national and international telecommunications by satellites, cables and other media including relations with the Canadian Overseas Telecommunication Corporation and participation in the work of the International Telecommunications Union and its subsidiary organs; (2) establishment and review of the telecommunications requirements of the Federal Government departments and agencies throughout Canada, and co-ordination of the planning and provision of facilities to meet these needs; (3) planning of emergency measures and administration of the Emergency National Telecommunication Organization (ENTO); (4) development and maintenance within the Bureau of a centre of competence in the latest telecommunications technology; and (5) administration of the Radio Act and Regulations including allocation and assignment of radio frequencies, radio provisions of the Canada Shipping Act, Ship Station Radio Regulations, the Telegraphs Act and the Regulations thereunder covering the licensing of transoceanic cables. The Policy, Plans and Programs Branch is responsible for the development of long-range plans and policies and the co-ordination of investigations and research programs that will improve knowledge about the Canadian communications environment. Each of these three major sectors of the Department reports to an Assistant Deputy Minister—ADM (Research), ADM (Operations) and ADM (Planning), respectively.

**Radio Aids to Marine and Aeronautical Navigation.**—Federal services in aid of marine and aeronautical navigation are outlined in the following paragraphs; details may be obtained on request from the Ministry of Transport, Ottawa. Six regional offices, located at Vancouver, B.C., Edmonton, Alta., Winnipeg, Man., Toronto, Ont., Montreal, Que., and Moncton, N.B., carry out the construction and operation of the facilities.

**Marine Navigation.**—Radio aids to marine navigation are provided for radio-equipped Canadian vessels and foreign ships using Canadian waters. This safety and communications service for shipping covers the East and West Coasts, the Great Lakes, the St. Lawrence River and Gulf, Hudson Bay and Hudson Strait and includes regularly broadcast weather reports, storm warnings and notices of danger to navigation. Ships at sea may obtain medical advice from any coast station. The stations carry out communications by radiotelegraph and/or radiotelephone and most of them provide connections to land telephone lines. Halifax (VCS) and Vancouver (VAI) stations provide long-range radiotelegraph and radiotelephone services to ships. Coast stations on Hudson Bay and Hudson Strait, in addition to their regular services, provide commercial communications for posts of the Hudson's Bay Company and various prospecting and development organizations, make weather observations, handle administrative traffic and assist aircraft with information, landing conditions, etc.

Automatic radiobeacon stations are maintained on the East and West Coasts, the St. Lawrence River and Gulf, the Great Lakes and Hudson Bay and Strait, giving navigational aid to mariners by transmitting signals on which bearings may be taken. These stations are arranged, where possible, in groups up to a maximum of six stations transmitting in sequence on a common frequency, the sequence being repeated continually regardless of weather conditions.

**Loran** is a long-range radio aid to marine and air navigation providing accurate fixes at distances up to 750 miles by day and 1,500 miles by night. Two Loran stations operate in Nova Scotia, three in Newfoundland and two on the West Coast. These stations, in conjunction with Loran stations of the United States Coast Guard, give service to ships and aircraft plying the North Atlantic and Pacific Oceans. **Decca** is a short-range radio aid to navigation providing accurate fixes at distances up to 250 miles. Four chains of Decca stations are in operation—the Newfoundland chain, the Nova Scotia chain, the Anticosti chain and the Cabot Strait chain—giving service to ships off Newfoundland and Nova Scotia and in the St. Lawrence River and Gulf.

It has become general practice to equip merchant ships with radar and important buoys are fitted with radar reflectors to increase their radar visibility. A shore-based radar installation is in operation on the Lion's Gate Bridge across the entrance of Vancouver Harbour. Four radar responder beacons (RACONS) are in year-round operation on the East Coast; three in the Western Arctic and one in the Great Lakes are in operation during the navigation season. Low power transceivers are provided for use in emergencies at lighthouses, particularly at locations that would otherwise be completely cut off from assistance in case of illness.

*Aeronautical Navigation.*—Radio aids to air navigation are provided by the Ministry of Transport from coast to coast and from the United States border to the Arctic regions for use by Canadian aircraft and foreign air carriers flying over Canadian territory.

Low frequency radio aids operating on the frequency band 200-415 KHz are generally located within a distance of 50 to 100 nautical miles of each other to form the low frequency airways system. A few are located "off airways" in remote regions and a number of low power radiobeacons serve major airports as terminal and landing aids. The Ministry of Transport operates 275 en route, low frequency aids (20 of which are the older type radio range class) and 61 low power terminal radiobeacons. These facilities are used primarily in association with airborne direction finding equipment. Voice channels on a number of low frequency aids are also used for aircraft communications and weather broadcast purposes.

Operating on the higher frequency bands VHF (very high frequency) and UHF (ultra high frequency), the Ministry of Transport operates 64 VHF Omni-directional Ranges (VOR), 60 Instrument Landing Systems (ILS) and 31 Tactical Air Navigation Systems (TACAN).

The VOR stations form the VHF airways system which closely parallels the older low frequency airways system. Use of the VOR permits a pilot to select any desired course. Additional VOR stations are being constructed on a continuing basis. TACAN stations are collocated with the VOR at 30 locations. The TACAN provides the pilot with a readout of the distance of the aircraft from the VOR station. The complete station is called a VORTAC.

Instrument Landing Systems (ILS) provide radio signals which permit aircraft landings during periods of low visibility. Radio transmitters provide lateral and slope guidance to the approach end of the runway and also provide an indication of the distance to the runway threshold. For air traffic control purposes, there are three main classes of radar in operation at Canadian airports consisting of: 15 airport and airways surveillance radars (AASR) with a range of 150 nautical miles; eight airport surveillance radars (ASR) with a range of 50 nautical miles; and nine precision approach radars (PAR), which are short-range radars used for landing at major airports.

Radiotelephone communications are provided by 116 ground stations called Aeradio Stations. From these stations, a pilot may obtain weather data, air traffic control instructions and other information concerning flight safety. These stations operate for the most part on the very high frequency (VHF) band but in the north and on international routes high frequency (HF) is utilized to provide the necessary long-range coverage. Thirteen of the 116 stations engage in international communications services for Canadian and foreign air carriers. All these ground stations are connected to a fixed teletype network with over 48,000 circuit miles provided to meet aeronautical communications needs.

#### **Subsection 4.—Overseas Telecommunications Services**

The Canadian Overseas Telecommunication Corporation (COTC) was established in 1950 to maintain and operate external telecommunication services for the conduct of public communications by cable, radiotelegraph and radiotelephone and any other means of telecommunication between Canada and overseas points; to make use of all developments in



cable and radio transmission and reception for external telecommunication services; and to conduct investigation and research with the object of improving and co-ordinating such telecommunication services with the telecommunication services of other nations.

The services currently being provided are as follows: direct telegraph, telephone and telex communications between Canada and Argentina, Australia, Austria, Barbados, Belgium, Bermuda, Brazil, Britain, Chile, Cyprus, Denmark, Finland, France, Germany, Greece, Hong Kong, the Irish Republic, Iceland, Israel, Italy, Jamaica, Japan, the Netherlands, New Zealand, Norway, Peru, the Soviet Union, Sweden, Switzerland and Trinidad and Tobago; direct telephone and telegraph services with the Islands of St. Pierre and Miquelon; direct telephone with Antigua, the Philippines, South Africa, Spain and Venezuela; and direct telex with Portugal and the Philippines. Datalink 600 service is in operation between Canada and Australia, Belgium, Britain, France, Germany, Hong Kong, Italy, Japan, Sweden and Switzerland. International telex service is provided with 164 countries.

The first transatlantic telephone cable, a joint project with the British Post Office, the American Telephone and Telegraph Company, Eastern Telephone and Telegraph Company and the Corporation, was brought into service in 1956. Since 1961, the following cables have been brought into service: the Canada-Greenland-Iceland 24-circuit telephone cable (ICECAN)—a two-party enterprise of the Great Northern Telegraph Company of Denmark and COTC; the Canada-Britain 80-circuit telephone cable (CANTAT); the Commonwealth Trans-Pacific 80-circuit telephone cable—a four-party enterprise of Canada, Britain, New Zealand and Australia, connecting Vancouver and New Zealand and Australia via Hawaii and Fiji (COMPAC); the South East Asia Commonwealth 80-circuit cable—a six-party enterprise of Canada, Britain, New Zealand, Australia, Malaysia and Singapore, connecting Australia, Hong Kong, Singapore and Kuala Lumpur via New Guinea and Guam (SEACOM); the Canada-Bermuda 640-circuit cable—a two-party enterprise of Canada and Britain (CANBER); and a number of circuits for Canadian purposes acquired in telephone cable systems connecting Bermuda, Jamaica, Puerto Rico and the United States.

The Corporation also operates direct circuits via the Atlantic satellites with Antigua, Argentina, Austria, Barbados, Belgium, Brazil, Britain, Chile, Denmark, France, Germany, Greece, Italy, the Irish Republic, Israel, Jamaica, the Netherlands, Peru, Spain, Switzerland, Trinidad and Tobago, and Venezuela. The earth station constructed for the Ministry of Communications for research and experimentation with respect to satellites at Mill Village, N.S., and the Corporation's own earth station at the same location, operate with the larger capacity satellites of the International Telecommunications Satellite Organization (INTELSAT) III and IV series. The Corporation at present operates direct circuits via the Pacific Satellite with Australia, Hong Kong, Japan, New Zealand, and the Philippines through the American-owned earth station at Jamesburg, California, pending the completion of its own earth station under construction on Vancouver Island, scheduled for the latter part of 1972. Apart from normal use of its system for television, public telephone, switched data, telex and telegraph message traffic, capacity is available for private leased circuits.

Canada, represented by Canadian Overseas Telecommunication Corporation, is a signatory to the Operating Agreement of the INTELSAT set up by the participating nations for the development and operation of a global communications satellite system. The Corporation also represents Canada on the Commonwealth Telecommunications Council.

The Corporation, under a long-term agreement, has under charter from the Ministry of Transport the CCGS *John Cabot*, a combined ice-breaker/cable-repair ship used mainly for repairing the cables in the western North Atlantic Ocean. The Corporation also operates a cable depot at St. John's, Nfld.



## 7.—External Cables Landed in Canada, 1970

Company and Station	Cables	Nautical Miles
	No.	No.
<b>Canadian Overseas Telecommunication Corporation (COTC)—</b>		
Port Alberni, B.C. to Sydney, Australia via Hawaii, Fiji Islands and New Zealand...	1	8,232
Sydney Mines, N.S. via Clarenville, Nfld. to Oban, Scotland <sup>1</sup> .....	2 <sup>2</sup>	2,280
Hampden, Nfld. to Oban, Scotland (CANTAT).....	1	2,010
Hampden, Nfld. to Vestmannaeyjar, Iceland via Greenland.....	1	1,657
Mill Village, N.S. to Flatts, Bermuda.....	1	790
<b>Western Union International Inc. (WUI)—</b>		
Bay Roberts, Nfld. to Hammil, N.Y., U.S.A.....	2	2,778
Bay Roberts, Nfld. to Azores.....	1	1,343
<b>Eastern Telephone and Telegraph Company (ET &amp; T)—</b>		
Sydney Mines, N.S. via Clarenville, Nfld. to Oban, Scotland <sup>1</sup> .....	2 <sup>2</sup>	2,280
Sydney Mines, N.S. via Clarenville, Nfld. to Penmarch, France.....	2	2,400
<b>New Brunswick Telephone Company Limited (NBTEL)—</b>		
Campobello Island, N.B. to Lubec, Me., U.S.A.....	1	0.3

<sup>1</sup> Twin cable from Clarenville, Nfld. to Oban, Scotland, and single cable from Clarenville, Nfld. via Terrenceville, Nfld. to Sydney Mines, N.S.

<sup>2</sup> Licensed for operation by two carriers—COTC and ET&T.

Increased use of all types of overseas telecommunication services resulted in the COTC reporting a net profit of \$5,355,061 for the year ended Mar. 31, 1971. Income for the year amounted to \$33,582,193.

## Section 2.—Radio and Television Broadcasting\*

Broadcasting began in Canada with the transmission of an experimental program by a Montreal radio station in 1918. Since that time radio and television have come to play a prominent part in the daily life of almost every Canadian. To have become such a vital national force, broadcasting had to learn the needs of the people and how to serve them. Two official languages, the foundation of two distinct cultures, had to be served independently and dozens of other cultural groups with widely divergent program interests also had to be served. Hundreds of radio transmitters, television stations, and repeaters are required to reach a population distributed over more than 3,500,000 sq. miles comprising seven time zones and a great variety of topographical and climatic regions. Not only do Canadians have local service that is a reflection of life in their own districts but, by means of thousands of miles of land lines for radio networks and microwave circuits for television, nearly every Canadian may listen or watch as an event of national or international interest takes place.

The broadcasting system in Canada has both public and private components. The earliest legislation with respect to Canadian broadcasting was passed in May 1932, creating the Canadian Radio Broadcasting Commission, but the basic principles for radio and television broadcasting have been revised over the years. The Broadcasting Act of 1968 (RSC 1970, c. B-11) entrusted the Canadian Radio-Television Commission under Part II of the Act with the direction of the Canadian broadcasting system. The CRTC is composed of five full-time Commissioners and ten part-time Commissioners, representative of the various regions of Canada. The Commission regulates and supervises all aspects of the broadcasting system, except for technical matters relating to the planning and construction of broadcasting facilities, which are the responsibility of the Department of Communications.

The Canadian Broadcasting Corporation, a publicly owned corporation established by Act of Parliament (now Part III of the Broadcasting Act), provides the national broadcasting service in Canada. Its radio and television facilities extend from the Atlantic Ocean to

\* Prepared by the Canadian Radio-Television Commission, Ottawa.

the Pacific, and north to the Arctic Circle. The CBC, created in 1936 to replace an earlier public broadcasting agency that had operated since 1932, is financed mainly by public funds voted annually by Parliament, with supplementary revenue obtained from commercial advertising. The head office is in Ottawa and the main production centres are Toronto for the English networks and Montreal for the French networks. Regional centres operate across the country.

An applicant for a licence to establish and operate an AM, FM or TV broadcasting station, a community antenna television system (CATV) or a network, files application forms with the Secretary of the CRTC. If found acceptable by the Commission, a public notice of the application is issued in the *Canada Gazette* and in one or more newspapers of general circulation within the area served or to be served by such station or system prior to the holding of a public hearing. The same procedure applies to an application for renewal or amendment of an existing licence.

**Radio.**—Despite the impact of television, radio remains an important means of communication for Canada's population. The CBC networks provide a wide variety of programming on a national basis and private local stations attract a large percentage of the listening audience.

About 97 p.c. of the households in Canada are equipped with radio. In about half of them there is more than one set, and often there is a radio in the car and one or more portable transistor sets. It is estimated that there is one radio for every two persons. To serve this audience, the CBC operates an English-language network and a French-language network and there are a considerable number of privately owned radio stations in operation, some affiliated with the CBC networks and some serving an entirely local function. Of the 331 AM stations in operation in 1971, 36 were owned by the CBC and 295 were privately owned. The English network consisted of 28 CBC-owned and -operated stations and 61 private affiliates; the French network was made up of eight CBC stations and 37 private affiliates. There is also a second French-language network consisting of five private radio stations. The 192 unaffiliated private stations performed a basically local community service. Of the 86 FM stations, 10 were operated by the CBC and 76 were privately operated. The private stations are financed entirely from advertising revenue.

In addition to a coast-to-coast English network and a French network that reaches a large proportion of the country's French-language population in eight of the 10 provinces, the CBC provides regional and local services. Its networks extend over more than 28,000 miles. It has its own news service and offers a wide variety of programs in information, public affairs and entertainment. It also provides three special services—the international service, the northern service, and the Armed Forces service.

**Television.**—Television programming began in Canada in 1952 and colour broadcasting in 1966. Of the 5,798,100 households in the country, 5,250,000 are equipped with one or more television sets. Two of the four Canadian television networks in operation are operated by the CBC, one in English and one in French. The 5,000-mile microwave network that links St. John's in Newfoundland to Vancouver Island and the Pacific Northwest is one of the longest in the world. The second English network, CTV, is composed of 77 privately owned stations, 12 of which originate programming; it reaches over half of the homes that have television in Canada and continues to increase its coverage. An application for the formation of a second French television network was approved by the CRTC in March 1971; in 1971 it consisted of three private stations in the Province of Quebec.

As of September 1971, Canada had 92 originating stations, including 17 Frontier Coverage Package stations—undertakings that broadcast CBC network programs on a delay basis—and 361 rebroadcasting stations. The CBC owned and operated 35 stations and 103 rebroadcasting transmitters and provided a substantial proportion of its national programming service through 40 privately owned stations which, with their 187 rebroadcasting stations, are affiliated with it. Eight privately owned stations have no network affiliation.



*Trans-Canada Telephone System companies that supply telecommunications facilities to Canadian telecasters were all hooked together for the first time in October 1971 to broadcast to a select audience of technicians the first of a series of operational instructional video tapes aimed at standardizing the technical details of running Television Operating Centres.*

From the start, the development of Canadian television was complicated by geographical and language factors. About half of the people of Canada live near the southern border and have access to programs broadcast by one or all of the major United States networks. This fact and the need to maintain a Canadian identity and to articulate Canadian interests contributed to the rapid development of Canadian television services. Toronto and Montreal now rank among the world's principal television production centres in the English and French languages; Vancouver, Edmonton, Winnipeg, Ottawa, Quebec City, Halifax and St. John's are the regional production centres. Of the 18 CBC stations that originate programming, 13 broadcast in English and five in French; of the 57 private stations, 32 English-language and eight French-language stations are affiliated with the CBC. There are 12 private English-language stations affiliated with the CTV network. Three French-language stations are affiliated with the second French television network, Télé-Métropole Corporation. Two English-language stations, independent of any network affiliation, are also in operation.

**Cable Television.**—Basically, cable television is an antenna system linked to the individual subscriber's set by cable through a series of amplifiers, making it possible to bring the subscriber signals he could not otherwise obtain. Cable systems are capable of carrying AM and FM radio as well as VHF and UHF television signals. For this service, the subscriber customarily pays an installation fee and a monthly rental of about \$5 a month. Systems range in size from 38 with fewer than 100 subscribers to five with more than 100,000. As of September 1971, there were 353 cable television systems operating in Canada, serving about 26 p.c. of all urban households in the country.

Cable television is recognized as an integral part of the Canadian broadcasting system and policies and regulations that concern it must take into account the effects on other



aspects of the national system. Cable television systems (CATV) are operated by private companies, each of which must be approved technically by the Department of Communications and licensed by the CRTC.

The CRTC in July 1971 announced its policy on cable television, emphasizing its mandate to provide the best possible service and widest choice from every source for the Canadian viewer. It is recognized that cable television provides an improved picture quality and extends the service area of broadcasting transmitting undertakings. It has given viewers a greater variety of programs and has made possible a greater information flow. The policy established the composition of the basic services that cable television must provide, including CBC and other Canadian local and regional stations, a community channel and, where requested by provincial authorities, access for educational programming. The CRTC will authorize cable television systems to carry distant stations using microwave or other electronic communication systems which technically extend the receiving system. Cable systems which fulfil the basic Canadian services to the community will be permitted to provide other channels, including up to three channels from stations not licensed in Canada.

The capacity of cable television systems to import distant signals can fragment local audiences and can have an adverse effect on local broadcasting outlets. Cable systems take programs off-the-air from locally licensed television stations and distribute them in a multitude of other areas without contributing to the production cost of these programs. The CRTC has concluded that cable television systems should pay for the Canadian programs and services received over the air by buying additional Canadian programs from local and regional licensees as well as network sources for play or replay on their systems, thus providing additional exposure for Canadian programs. A policy of program deletion and replacement, where identical programs are scheduled by stations already serving the community, will enable stations already licensed to serve an area to regain their portion of the local audience without reducing or restricting viewer choice. The CRTC also encourages a similar policy for commercial messages. Although cable licensees will not be permitted to sell advertising, they may remove the commercial content of signals not licensed to serve Canada and insert replacement commercial messages sold by Canadian television stations.

### **Operations of the Canadian Broadcasting Corporation, 1970-71\***

**Programming.**—The CBC continued to increase its Canadian program content during 1970-71. Both English and French television networks achieved prime-time Canadian content levels of about 70 p.c. Canadian content on the AM radio networks, English and French, was about 75 p.c. The time given to colour programming in a normal week's schedule ranged from 70 to 84 p.c. on the English television network and from 49 to 79 p.c. on the French network.

Regional participation in national program schedules and planning was considerably increased in both French and English services. There was also a greater emphasis on community service by individual CBC stations, with the assignment of more local periods in the French services and the introduction of new morning radio formats on a number of English stations. The Frontier Coverage Package schedule was revised to improve program service to northern viewers.

Following a major internal study of CBC radio, the CBC Directors approved proposals for the gradual realignment of programming into complementary AM and FM services in both English and French. In each language, Radio One (AM) would emphasize news, information, community programming and light entertainment; Radio Two (FM) would offer more extended program formats concentrating on music, the arts and documentary material. A summary of this long-range plan was presented to the Parliamentary Committee on Broadcasting, and applications were submitted to the CRTC for authority to establish additional FM stations.

\* Revised by CBC Information Services, Ottawa.



The CBC continued to be the major developer and employer of Canadian talent, engaging some 30,000 Canadian artists and performers at total fees of \$21,600,000.

The CBC Research Department continued its weekly surveys of audience reaction to French and English television programs, and also conducted a variety of special studies on subjects such as the impact of cable television, public feeling on topical social issues, radio listening habits, and the analysis of coverage and market data.

**Facilities and Coverage.**—As of Mar. 31, 1971, 98.6 p.c. of Canadians were within reach of CBC radio and 96.8 p.c. could receive CBC television. Coverage extensions brought the total length of CBC radio networks to 28,060 miles, and of CBC television networks to 11,452 miles. New installations during the year included five new television transmitters, 22 new radio transmitters, and one new Frontier Coverage Package (CBC-designed transmitter for isolated locations offering limited program service on tape).

During 1970, an ultra high frequency education station came into operation in Toronto, owned and operated by CBC and programmed by the Ontario Department of Education. The CBC acquired part ownership of CKLW-TV in Windsor, Ont., with completion of the purchase scheduled for 1973-74. Work was in progress on a new CBC television station in Saskatoon, Sask., scheduled to go on the air in the fall of 1971. In radio, the CBC's Toronto FM station was converted to stereo operation in December 1970, and the two Montreal FM stations, English and French, were converted in 1971.

Work was well advanced on the CBC's new Montreal broadcasting centre at Place de Radio-Canada, with first occupancy expected in late 1971 and full operation during the course of 1972. Regional production facilities were expanded at Moncton, N.B., and plans were in progress for consolidated facilities in Vancouver, B.C.

Discussions were continued with Telesat Canada regarding CBC plans to lease channels on the domestic communications satellite *Anik*, scheduled to be in operation in 1973. The CBC's position on cable television and its place in the Canadian broadcasting system was set out in a brief to the CRTC.

**Organization.**—Reorganization of the CBC, in progress since 1968, was almost completed by early 1971, with English-language operations centred in Toronto under the English Services Division, French-language operations in Montreal under the French Services Division, and foreign operations, including Radio Canada International, grouped under the External Services Division. A new management information system was in operation, to facilitate program planning and production. The total number of CBC employees as of March 1971 was 8,872, a slight reduction from the previous year.

**External Operations.**—The 11 language sections of Radio Canada International transmit 85 hours a week of shortwave programs to Europe, Africa, Latin America, Australasia, the Caribbean and the United States. Some 80,000 audience letters are received each year, and the international membership of the Radio Canada Shortwave Club reached 10,000 in 1970. The international service also continues to supply music and spoken word transcriptions to foreign broadcasting organizations.

In February 1971, Radio Canada International observed the 20th anniversary of its shortwave broadcasts in Russian. In June 1971, a special Canadian postage stamp was issued marking the installation of two of the planned five new 250-kw. transmitters at Sackville, N.B. Also in 1971, the CBC's shortwave receiving station near Ottawa was moved to a new and larger site at Stanley Corners.

CBC continued its active association with international organizations such as the Communauté des Télévisions Francophones, the Communauté radiophonique des Programmes de langue française, the Commonwealth Broadcasting Conference, the European Broadcasting Union and the Asian Broadcasting Union. A variety of program exchanges and co-productions were arranged, the CBC hosted or attended several international workshops and conferences, and the External Services Division provided liaison in preparation for CBC coverage of coming world events such as the 1972 Olympics in Japan and

Germany. The CBC received a number of foreign broadcasters on training attachments in co-operation with the Canadian International Development Agency, UN agencies and foreign broadcasting organizations.

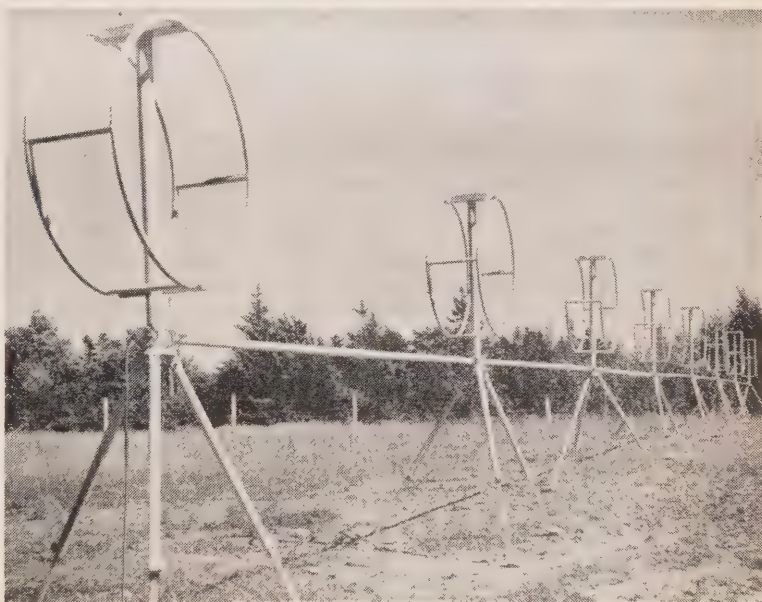
The Foreign Sales Department of the CBC placed a variety of French and English productions with broadcasters in the United Kingdom, the Netherlands, Germany, Sweden, the United States, New Zealand, Japan, Australia, France, Belgium, Switzerland and Monaco. Among international awards won by CBC productions were the Grand Prix de l'Actualité, presented by the Communauté radiophonique des Programmes de langue française for a radio report on the liberation of James Cross; Ohio State Awards for educational radio programming were received for *Indians of North America* and *A Many-Colored Canvas*; Major Armstrong Awards for excellence and originality in FM programming; and a certificate of recognition from the Association for Children with Learning Disabilities (U.S.A.) for general programming in this field.

CAE, the Canadian Armed Forces radio station operated by CBC personnel at Werl, Federal Republic of Germany, was closed in 1970 when Canadian NATO forces were consolidated at Lahr. Station CFN at Lahr continued in operation and began broadcasting in both English and French.

**Finance.**—Total operating expense for the year ended Mar. 31, 1971, was \$218,139,000, an increase of \$10,106,000 or 4.9 p.c. over the previous year; this amount included \$11,034,000 for depreciation and amortization not recoverable from the Parliamentary payment. An amount of \$47,466,000 was obtained from revenue (mostly advertising revenue which grossed \$45,061,000), a \$1,400,000 decrease from the previous year. Of the total Parliamentary payment of \$166,000,000, an amount of \$159,700,000 was applied to meet net operating expenditures, and \$6,300,000 was applied to repayment of capital loans; the surplus of \$61,000 was carried forward to meet future operating expenditures. Capital assets, after accumulated depreciation, totalled \$132,586,000.

As a Crown corporation, the CBC continued to be affected by Government restraints and operated the national broadcasting service in 1970-71 within the Parliamentary pay-

Radio Canada International's new monitoring station near Ottawa features an aperiodic antenna system made up of three arrays of eight loops each. Two are set in place diversity for pick-up of programs from Europe and the third is directed to Africa.



ment of \$166,000,000, which was the same as the amount provided in the previous year. The Corporation was able to meet increased operating costs and cover-off reduced advertising revenue and, at the same time, generate a small surplus of \$61,000 for the year. This was added to previous year's surplus, and a total of \$13,016,000 was carried forward to subsequent fiscal years. The surplus is available to assist in meeting rising costs as well as additional Canadian programming requirements.

### 8.—Financial Statement of CBC Operations, Years Ended Mar. 31, 1970 and 1971

Item	1969-70	1970-71
	\$'000	\$'000
<b>Expenses—</b>		
Production and Distribution—		
Cost of programs.....	128,072	135,040
Network distribution.....	16,722	17,819
Station transmission.....	10,842	11,162
Payment to private stations.....	5,725	5,148
Commissions to agencies and networks.....	5,383	5,056
External services.....	4,326	4,402
Emergency broadcasting.....	418	203
Operational supervision and services.....	16,840	17,812
Selling and Administration—		
Selling expense.....	3,425	3,643
Engineering and development.....	1,720	1,640
Management and central services.....	8,492	8,779
Interest on loans.....	6,068	7,435
<b>Totals, Expenses.....</b>	<b>208,033</b>	<b>218,139</b>
<b>Income—</b>		
Parliamentary payment.....	160,935	159,700
Advertising revenue (gross).....	47,033	45,061
Interest on investments.....	1,120	1,259
Miscellaneous.....	756	1,146
<b>Totals, Income.....</b>	<b>209,844</b>	<b>207,166</b>
Depreciation and amortization included with total expenses.....	10,182	11,034
	<b>220,026</b>	<b>218,200</b>
Surplus for the year.....	11,993	61

### Statistics of the Broadcasting Industry\*

Financial and other statistics of the radio and television broadcasting industry are obtained by Statistics Canada in co-operation with the Canadian Radio-Television Commission; summary figures for private and CBC sectors are given in Table 9 for the year 1970.

In 1970, 338 private radio stations and 66 television stations reported to Statistics Canada. The operating revenue of the broadcasting industry for the year amounted to \$263,292,561, an increase of 6.6 p.c. over 1969. Of the total, radio broadcasting accounted for \$116,423,211 or 44.2 p.c. and television broadcasting for \$146,869,350 or 55.8 p.c.; in 1969, radio received \$109,907,435 or 44.5 p.c. and television \$137,141,456 or 55.5 p.c. Revenue from national and network time sales represented 60.7 p.c. of the total broadcasting revenue and revenue from local time sales 39.3 p.c.; national and network time sales increased by 6.2 p.c., local time sales by 4.9 p.c. and other incidental operating revenue by 20.3 p.c. over 1969. Operating expenses in 1970 at \$397,157,255 were 5.5 p.c. higher than in 1969. The growth of revenues exceeded the growth of expenses and resulted in an operating profit of \$30,842,306 in 1970 compared with one of \$36,623,163 in 1969. After adjustment on account of other income and expenses and income taxes, the final net profit of the private sector of the broadcasting industry in 1970 was \$13,758,994 compared with \$17,744,962 in 1969.

\* Prepared by the Transportation and Public Utilities Division, Statistics Canada.



### 9.—Operating Revenue and Expenses and Employee Statistics of the Radio and Television Broadcasting Industry, 1970

Item	Radio Stations			Television Stations			Total Radio and Television Stations
	Private	CBC	Total	Private	CBC	Total	
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Operating Revenue—</b>							
Sales of air time <sup>1</sup> .....	111,813	1,854	113,667	95,906	34,711	130,617	244,284
Local.....	70,768	810	71,578	21,828	2,467	24,295	95,873
National.....	40,571	663	41,234	63,033	12,551	75,584	116,818
Network <sup>2</sup> .....	474	381	855	11,045	19,693	30,738	31,593
Incidental operating revenue.....	2,735	21	2,756	15,259	993	16,252	19,008
<b>Totals, Operating Revenue</b>	<b>114,548</b>	<b>1,875</b>	<b>116,423</b>	<b>111,165</b>	<b>35,704</b>	<b>146,869</b>	<b>263,292</b>
Parliamentary grants <sup>3</sup> .....	—	35,896	35,896	—	128,811	128,811	164,707
<b>Totals, Operating Revenue and Parliamentary Grants</b>	<b>114,548</b>	<b>37,771</b>	<b>152,319</b>	<b>111,165</b>	<b>164,515</b>	<b>275,680</b>	<b>427,999</b>
<b>Operating Expenses—</b>							
Direct remuneration.....	47,054	18,397	65,451	32,742	73,589	106,331	171,782
Fringe benefits.....	1,955	1,393	3,348	1,505	5,574	7,079	10,427
Talent fees.....	1,736	4,408	6,144	4,722	17,631	22,353	28,497
Raw film and audio tape, studio sets and props, and other materials and supplies.....	364	1,494	1,858	2,135	5,977	8,112	9,970
Remote facilities.....	507	—	507	180	—	180	687
News service, music recordings and transcriptions, and program rights and royalties.....	3,705	758	4,463	1,104	3,030	4,134	8,597
Amortization of feature films, syndicated and other programs..	139	—	139	12,247	13,230	25,477	25,616
Program distribution and customs expenses.....	34	—	34	826	—	826	860
Network assessments.....	14	—	14	2,383	—	2,383	2,397
Other direct program expenses...	1,055	715	1,770	1,368	2,862	4,230	6,000
Transmitter, studio and mobile unit tubes expenses.....	444	123	567	852	491	1,343	1,910
VTR heads, and tape expenses...	46	—	46	1,175	—	1,175	1,221
Equipment parts and supplies, and other technical expenses.....	828	425	1,253	1,077	1,701	2,778	4,031
Line charges.....	574	2,494	3,068	292	9,974	10,266	13,334
Advertising, promotion and publicity.....	3,516	389	3,905	1,601	1,554	3,155	7,060
Rating services.....	546	157	703	435	627	1,062	1,765
Sales representatives commissions	7,871	70	7,941	4,045	282	4,327	12,268
Other selling, promotion and publicity expenses.....	896	—	896	619	—	619	1,515
Travel, entertainment, membership dues and subscriptions....	2,747	476	3,223	1,603	1,905	3,508	6,731
Motor vehicle operating expenses..	1,107	110	1,217	517	442	959	2,176
Rent of premises, and light, heat and power.....	2,885	956	3,841	2,577	3,826	6,403	10,244
Depreciation and amortization....	4,940	2,042	6,982	7,856	8,360	16,216	23,198
Maintenance and repairs.....	1,165	259	1,424	946	1,036	1,982	3,406
Legal, audit and other professional fees.....	1,802	63	1,865	567	254	821	2,686
Doubtful accounts.....	1,092	2	1,094	345	8	353	1,447
Station and music licence fees....	3,789	209	3,998	3,335	837	4,172	8,170
Equipment rental.....	475	132	607	496	523	1,024	1,631
Interest on obligations.....	1,476	1,359	2,835	1,493	5,437	6,930	9,765
Other operating expenses.....	8,570	1,340	9,910	4,496	5,360	9,856	19,766
<b>Totals, Operating Expenses.</b>	<b>101,332</b>	<b>37,771</b>	<b>139,103</b>	<b>93,539</b>	<b>164,515</b>	<b>258,054</b>	<b>397,157</b>
<b>Net Operating Profit including Parliamentary Grants.....</b>	<b>13,216</b>	<b>—</b>	<b>13,216</b>	<b>17,626</b>	<b>—</b>	<b>17,626</b>	<b>30,842</b>
Average monthly number of employees.....	6,278	1,830	8,108	4,149	7,319	11,468	19,576

<sup>1</sup> After deducting advertising agency commissions and trade discounts.<sup>2</sup> After deducting line and service<sup>3</sup> The CBC charges its operations with depreciation. The charge so made has been added to the Parliamentary grants.



**Statistics of the Community Antenna Television Industry.**—Table 10 presents financial statistics of an annual series dealing with the Canadian CATV industry. It should be noted that the series was re-designed for 1970 so that the resulting statistics are not comparable with those published in the 1970-71 Year Book.

This industry, comprising 314 operating systems, reported an increase in total operating revenue for the year ended Aug. 31, 1970 of 46.8 p.c., rising from \$37,400,000 to \$54,900,000 over that for the previous year. Subscription revenue from individual subscribers and multi-outlet contracts accounted for \$51,700,000 or 94.2 p.c. of the total. Operating expenses rose from \$22,200,000 (adjusted to exclude interest and depreciation for purposes of comparability) to \$30,300,000 in 1970, resulting in a net operating profit of \$24,700,000 compared with one of \$15,200,000 in the previous year. After deducting "other revenue net of other expenses", "net loss derived from activities not related to CATV" and "estimated income taxes", the industry achieved a net profit to Aug. 31, 1970 of \$5,100,000 compared with one of \$2,300,000 earned in the previous year.

#### 10.—Financial Statistics of the CATV Industry, Year Ended Aug. 31, 1970

Item	Amount
	\$
<b>Operating Revenue—</b>	
Sales Revenue—	
Subscription revenue.....	51,713,859
Installation (or move) revenue.....	2,596,986
Other sales revenue.....	67,660
Incidental operating revenue.....	561,750
<b>Totals, Operating Revenue.....</b>	<b>54,940,255</b>
<b>Operating Expenses—</b>	
Salaries, wages and fringe benefits.....	12,026,618
Program origination.....	264,139
Technical Service—	
Lease payments; Head-end and distribution system.....	2,677,073
Repairs and maintenance to property, plant and equipment.....	2,732,641
Vehicle expenses (including lease payments).....	1,085,599
Miscellaneous technical and service expenses.....	1,359,498
Advertising, sales and promotion.....	2,130,758
Administration and General—	
Professional services (legal, accounting and consulting).....	1,306,498
Office supplies and expenses.....	1,597,323
Miscellaneous administrative and general expenses.....	3,302,785
Other expenses not classified above.....	1,798,613
<b>Totals, Operating Expenses.....</b>	<b>30,281,545</b>
Net operating profit.....	24,658,710
Other revenue net of other expenses.....	(11,061,481)
Net profit (loss) derived from activities not related to CATV.....	(3,384,128)
Deduct estimated income taxes.....	5,152,052
Net profit to Aug. 31, 1970.....	5,081,049

### Section 3.—The National Film Board\*

The National Film Board, an agency of the Federal Government, was established by Act of Parliament in 1939 and reconstituted by the National Film Act in 1950—its function, "to initiate and promote the production and distribution of films in the national interest". The Board's films are produced in Canada's two official languages and, during the 32 years of production, have made a considerable contribution to the country's culture and to the national identity.

\*Statistics relating to the over-all motion picture industry in Canada are given in Chapter XX, pp. 1002-1004.

In addition to 35mm and 16mm films, the Board produces and distributes other visual aids materials—filmstrips, 8mm loop films, slide sets, overhead projectuals, multi-media kits and photo stories. A recent contract provides for release of some 100 NFB films in the new EVR (electronic video-tape recording) format for television viewing.

The growing sophistication of film audiences and the increasing importance of film as a means of communication are reflected in the nature of films produced—features, documentaries, informational films, films for the specific needs of government departments, and films designed for particular social purposes. The Board strives to serve as innovator of new cinema techniques, as well as a recorder of the nation's day-to-day evolution. Thus, new needs and greater public sensitivity have encouraged the Board's film-makers to explore new film styles and to experiment in new areas of film production. There have been corresponding new departures in the distribution and use of films, as more people turn to films as a matter of course for information and assistance in many activities.

In Canada, the Board's productions are distributed through community outlets, schools and universities, television stations, theatres and commercial sales. In all of these areas annual figures show a steady and, in some instances, a marked increase. A large part of the 16mm community film audience is reached through film libraries, film councils and special interest groups. The growing appetite for films can be attributed to the wide range of subject matter available. The Board's catalogue, produced by its Publicity Division, lists some 60 main and sub-categories. Original films are shown regularly over English-language and French-language television networks in Canada as well as in cinemas.

NFB film distribution outside Canada also continues to increase. The Board's films are seen at most of the world's international film festivals with gratifying response from the judges, film critics and the audiences. Film distribution abroad is promoted by the Board's offices in New York, London, Paris, Buenos Aires, New Delhi and Tokyo, and by posts of the Departments of External Affairs and of Industry, Trade and Commerce. The aggregate audience of films loaned by the Department of External Affairs in some 80 countries was in 1971 in excess of 65,000,000 people. NFB films are shown in theatres of some 100 countries. To increase the usefulness of films about Canada abroad, the Board makes foreign-language versions of some films in 40 or more languages. Language versions are also made under contract with television networks and school film distributors in other countries. The Board co-operates with the Canadian Travel Bureau to distribute films in support of Canada's travel industry to appropriate audiences in the United States, Europe and other areas. The total audience of Canadian travel films shown abroad in 1971 was close to 14,000,000, of which 12,000,000 were in the United States.

The Board, in its mandate to "interpret Canada to Canadians and to the rest of the world", seeks to reflect the interests of the Canadian people and those shared with other people around the world. The fact that demand for the Board's films grows by about 33 p.c. a year indicates that this mandate is being fulfilled.

### Section 4.—Postal Service

The basic tasks of the Canadian Postal Service are to receive, convey and deliver postal matter with speed and security, for which duties it maintains thousands of post offices and utilizes air, rail, road and water transportation facilities. Associated functions include the sale of stamps and other articles of postage, the registration of letters and other mail for dispatch, the insuring of parcels, the accounting of COD articles and the transaction of money-order business. Also, because of its transcontinental facilities, the Post Office assists other government departments with such tasks as selling unemployment insurance stamps and hunting permits, collecting government annuity payments, distributing income tax forms and Public Service employment application forms, and displaying government posters.

Post offices are established wherever the population warrants. Those in rural areas and small urban centres transact all the functions of a city office. In larger urban areas,

postal stations have full functions similar to the main post office, including general delivery service, lock-box delivery and letter-carrier delivery. Much sophisticated automatic equipment has been installed in Canada's larger post offices, which could be described as complex semi-automated plants. Such devices include conveyors and chutes, parcel and bag sorting machines, photo-electric counters, intercom systems, observation gallery telephone systems and industrial music. Outside the post office building, mailmobiles, automatic stamp-vending machines and curbside mail boxes are in use.

The operating service of the Post Office Department is organized into four regions, each headed by a General Manager reporting directly to the Deputy Postmaster General. The regions are further divided into districts, each headed by a District Director. The operating and support functions required in the provision of postal service to the public are the responsibility of the local postmasters who receive technical and administrative assistance from district and regional offices at strategic points.

Postal service is provided in Canada from Newfoundland to the west coast of Vancouver Island and from Pelee Island, Ont., in the south, to settlements and missions far into the Arctic. Canada's airmail system utilizes most transcontinental flights, supported by many branch and connecting lines, and links up with the United States domestic and other international airmail systems. First-class domestic mail is carried by air between Canadian points, whenever delivery can thus be expedited. Air stage routes provide an all-class mail service to many northern areas which can be served only by air. There are over 46,000 miles of airmail and air stage routes.

At Mar. 31, 1971, there were 8,994 post offices in operation; letter-carrier delivery was being provided in 241 urban areas and 5,161 private contractors were delivering mail to 775,017 rural and suburban households. In 1971, there were 637 city mail services transporting mail between post offices and postal stations, collecting mail from street letter boxes and delivering parcel post, and some 382 side services were transporting mail between post offices and railway stations, wharves and airports. Intercity transportation of mail by highway motor vehicles was being conducted by 635 major services, complemented by 951 feeder or stage services operating to and from smaller centres. Although many of the highway services have replaced rail for the transportation of mails, rail remained the principal mode for long-distance movements of other than first-class matter.

Revenue and expenditure of the Post Office Department for the five years ended Mar. 31, 1970 are shown in Table 11; gross revenue receipts are received mainly from postage, either in the form of postage stamps and stamped stationery, or postage meter and postage register machine impressions. Some postage is also paid in cash without stamps, stamped stationery or meter and register impressions. During the year, 44,594,066 money orders were issued having a value of \$938,682,250, of which \$912,408,724 was payable in Canada and \$26,273,525 was payable in other countries. The value of money orders issued in other countries and payable in Canada was \$8,463,315.

**11.—Revenue and Expenditure of the Post Office Department, Years Ended Mar. 31, 1967-71**

Year Ended Mar. 31—	Revenue	Expenditure	Deficit
	\$	\$	\$
1967.....	305,400,000	353,100,000	47,700,000
1968.....	337,023,000	404,214,000	67,191,000
1969.....	374,902,000	465,233,000	90,331,000
1970.....	444,069,000	497,017,000	52,948,000
1971.....	432,900,000	533,400,000	100,500,000



## Section 5.—The Press\*

The freedom of the public in Canada is strenuously exercised by an omnipresent press. Daily newspapers published in the country in 1971 numbered 120, counting morning and evening editions separately. Combined circulation was about 4,692,000—82 p.c. in English and 18 p.c. in French. Publishers' surveys show that each newspaper is read by an average of three persons.

Daily newspaper advertising revenue in 1970 was \$301,392,000 and circulation revenue was \$109,978,000. By comparison, advertising revenue of 338 private radio stations in Canada in 1970 was \$111,813,000 and of 66 private television stations \$95,907,000. In 1971, there were 14 daily newspapers that had a circulation in excess of 100,000, accounting for 54 p.c. of total circulation. There were 12 dailies published in the French language, 10 of them located in Quebec. Although the circulation of daily newspapers blankets the more populous areas well beyond publishing points, smaller cities and towns and rural areas are also served by 822 weekly newspapers catering to local interests and exercising important local influence. The Canadian society is also enriched by 87 ethnic daily or weekly newspapers published in many languages, often sprinkled with English.

About 60 p.c. of Canada's daily newspapers are privately owned or independent. There are three major newspaper chains in the country, owned by Southam Press Ltd. (10 dailies), Thomson Newspapers Ltd. (27 dailies) and FP Publications Ltd. (eight dailies). Both Southam and Thomson Newspapers are publicly owned companies with shares traded on Canadian stock exchanges. Papers in the Thomson chain are concentrated in the smaller cities. FP accounts for about 19 p.c. of total daily circulation, Southam for 18 p.c. and Thomson for about 8 p.c.

In addition to their own news-gathering staffs and facilities, Canadian newspapers subscribe to a number of syndicated agencies and wire services, the largest being The Canadian Press which is a co-operative agency owned and operated by Canadian dailies. Largely by teletype and wirephoto transmission, it provides its 104 member newspapers with world and Canadian news and also serves weekly newspapers and radio and television stations. CP has its own news-gathering staff and each member newspaper provides the agency with important local news for transmission to fellow members and members share the cost in ratio to their circulations.

CP carries world news from Reuters (the British agency), from The Associated Press (the United States co-operative) and from Agence France-Presse (of France) and these agencies are offered CP news on a reciprocal basis. CP maintains a French-language service in Quebec.

United Press International of Canada, the second major news wire service in Canada, is a private company and a part of United Press International World Service. It provides Canadian and international news and pictures to about 40 subscribers in Canada and is an outlet for Canadian news through United Press International facilities throughout the world. Certain foreign newspapers maintain bureaus in Ottawa and elsewhere in Canada to collect and interpret Canadian news.

**Press Statistics.**—The following tables are based on data estimated from *Canadian Advertising*. Circulation figures are given for daily English-language and French-language newspapers only. Such circulation figures are relatively easy to obtain because, in their own interest, newspapers qualify for and subscribe to the Audit Bureau of Circulation. For these, ABC 'net paid' figures have been used; 'controlled' (free) distribution newspapers are not included. On the other hand, circulation data for foreign-language newspapers, weekly newspapers, weekend newspapers and magazines are incomplete and therefore not usable.

\* An article in the 1957-58 Year Book traces developments in Canadian journalism from their beginnings in 1752 to (circa) 1900. A second article appearing in the 1959 edition brings that account up to 1958.



**12.—Estimated Numbers and Circulations of Reporting English-Language, French-Language and Foreign-Language Newspapers, by Province, 1970 and 1971**

Province or Territory	1970				1971			
	Daily		Weekly <sup>1</sup>	Weekend	Daily		Weekly <sup>1</sup>	Weekend
	No.	Circulation <sup>2</sup>	No.	No.	No.	Circulation <sup>2</sup>	No.	No.
<b>ENGLISH-LANGUAGE NEWSPAPERS</b>								
Newfoundland.....	3	41,685	5	1	3	41,242	6	1
Prince Edward Island.....	3	28,813	—	—	3	29,026	—	—
Nova Scotia.....	6	160,212	33	—	6	161,009	30	—
New Brunswick.....	5	102,780	14	—	5	105,114	14	—
Quebec.....	4	327,607	18	2	4	327,847	16	2
Ontario.....	48	1,928,251	242	4	47	1,946,853	243	3
Manitoba.....	7	239,548	60	—	7	252,222	58	—
Saskatchewan.....	4	132,574	92	—	4	133,016	92	—
Alberta.....	7	332,832	84	—	7	340,947	96	—
British Columbia.....	15	536,032	98	—	16	503,968	94	—
Yukon and Northwest Territories.....	—	—	3	—	—	—	3	—
<b>Totals.....</b>	<b>102</b>	<b>3,830,334</b>	<b>649</b>	<b>7</b>	<b>102</b>	<b>3,841,244</b>	<b>652</b>	<b>6</b>
<b>FRENCH-LANGUAGE NEWSPAPERS</b>								
Nova Scotia.....	—	—	1	—	—	—	1	—
New Brunswick.....	1	7,920	3	—	1	8,431	3	—
Quebec.....	10	698,455	150	18	10	804,277	151	16
Ontario.....	1	34,951	5	—	1	38,218	5	—
Manitoba.....	—	—	1	—	—	—	1	—
Saskatchewan.....	—	—	6	—	—	—	6	—
Alberta.....	—	—	2	—	—	—	2	—
British Columbia.....	—	—	1	—	—	—	1	—
<b>Totals.....</b>	<b>12</b>	<b>741,326</b>	<b>169<sup>3</sup></b>	<b>18</b>	<b>12</b>	<b>850,926</b>	<b>170<sup>4</sup></b>	<b>16</b>
<b>FOREIGN-LANGUAGE NEWSPAPERS<sup>5</sup></b>								
Quebec.....	—	—	14	—	—	—	14	—
Ontario.....	3	..	53	—	3	..	50	—
Manitoba.....	—	—	11	—	—	—	10	—
Alberta.....	—	—	1	—	—	—	1	—
British Columbia.....	3	..	4	—	3	..	6	—
<b>Totals.....</b>	<b>6</b>	<b>..</b>	<b>83</b>	<b>—</b>	<b>6</b>	<b>..</b>	<b>81</b>	<b>—</b>

<sup>1</sup> Includes semi-weeklies, tri-weeklies and bi-weeklies.<sup>2</sup> Includes 50 bilinguals—New Brunswick 2, Quebec 42, Ontario 2 and Saskatchewan 4.<sup>3</sup> New Brunswick 2, Quebec 45, Ontario 3 and Saskatchewan 4.<sup>4</sup> Includes 54 bilinguals—<sup>5</sup> All daily and weekly foreign-language publications given here are considered to be newspapers.

**13.—Estimated Numbers and Circulations of Reporting English-Language and French-Language Newspapers Published in Incorporated Centres of Over 30,000 Population, 1970 and 1971.**

Incorporated Centre	Households (Census 1966)	1970			1971			
		Daily		Weekly	Daily		Weekly	
		No.	No.	Circulation	No.	No.	Circulation	No.
ENGLISH-LANGUAGE NEWSPAPERS								
Belleville, Ont.	9,287	1	1	16,138	1	1	15,994	—
Brampton, Ont.	9,184	1	1	7,590	1	1	7,496	1
Brantford, Ont.	17,395	1	—	26,237	—	1	27,217	—
Burlington, Ont.	17,171	—	—	—	2	—	—	2
Calgary, Alta.	94,941	2	—	137,040	1	2	139,042	1
Chatham, Ont.	9,304	1	—	14,777	—	1	15,299	—
Cornwall, Ont.	11,783	1	—	14,516	—	1	14,661	—
Dartmouth, N.S.	13,937	—	—	—	1	—	—	1
Edmonton, Alta.	105,016	1	—	153,588	2	1	157,943	1
Galt, Ont.	9,303	1	—	13,413	—	1	13,892	—
Granby, Que.	8,622	—	—	—	1	—	—	1
Guelph, Ont.	13,876	1	—	17,519	—	1	17,792	—
Halifax, N.S.	21,617	2	—	114,524	2	2	114,781	3
Hamilton, Ont.	84,540	1	—	125,524	2	1	127,922	2
Kingston, Ont.	16,419	1	—	28,249	1 <sup>1</sup>	1	30,533	—
Kitchener, Ont.	26,192	1	—	52,604	—	1	54,079	—
Lethbridge, Alta.	10,644	—	—	20,108	—	1	21,955	—
London, Ont.	56,368	2	—	119,851	—	2	123,799	—
Moncton, N.B.	11,605	2	—	32,866	—	2	34,395	1
Montreal, Que.	368,669	2	—	315,330	3 <sup>2</sup>	2	316,693	3 <sup>2</sup>
Moose Jaw, Sask.	10,087	1	—	8,944	—	1	8,819	—
New Westminster, B.C.	12,281	1	—	25,876	1	1	34,065	1
Niagara Falls, Ont.	15,725	1	—	18,216	—	1	18,256	—
Oakville, Ont.	13,452	1	—	7,634	1	1	7,873	1
Oshawa, Ont.	21,751	1	—	23,274	—	1	23,920	—
Ottawa, Ont.	81,703	2	—	161,425	1	2	152,763	1
Peterborough, Ont.	15,456	1	—	24,421	1	1	25,590	1
Quebec, Que.	44,589	1	—	4,214	—	1	3,914	—
Regina, Sask.	37,314	1	—	65,426	—	1	66,224	—
St. Catharines, Ont.	27,203	1	—	34,086	—	1	36,578	—
St. James, Man.	9,918	—	—	—	1	—	—	—
St. John's, Nfld.	16,563	2	—	34,278	1 <sup>1</sup>	2	33,838	1 <sup>1</sup>
Saint John, N.B.	14,075	2	—	53,387	1	2	54,102	—
Sarnia, Ont.	15,058	1	—	18,565	1	1	19,017	1
Saskatoon, Sask.	33,224	1	—	50,094	—	1	49,956	1
Sault Ste. Marie, Ont.	18,626	1	—	20,927	—	1	20,644	—
Shawinigan, Que.	7,320	—	—	—	1	—	—	—
Sherbrooke, Que.	19,101	1	—	8,063	—	1	7,240	—
Sudbury, Ont.	21,486	1	—	34,331	—	1	39,498	—
Sydney, N.S.	7,615	1	—	27,145	1	1	27,929	1
Thunder Bay, Ont.	26,051	2	—	31,927	—	2	32,296	—
Toronto, Ont.	178,525	4	—	876,632	10 <sup>3</sup>	4	876,458	8 <sup>3</sup>
Trois-Rivières, Que.	14,123	—	—	—	1	—	—	—
Vancouver, B.C.	138,449	2	—	369,569	4	2	314,474	2
Victoria, B.C.	20,795	2	—	70,662	4	2	75,889	1
Welland, Ont.	10,625	1	—	19,202	—	1	19,451	—
Windsor, Ont.	53,687	1	—	85,410	—	1	86,207	—
Winnipeg, Man.	77,930	2	—	212,218	2	2	224,873	2
FRENCH-LANGUAGE NEWSPAPERS								
Chicoutimi, Que.	6,377	—	—	—	2	—	—	2
Cornwall, Ont.	11,783	—	—	—	1	—	—	1 <sup>4</sup>
Edmonton, Alta.	105,016	—	—	—	1	—	—	1
Granby, Que.	8,622	1	—	11,207	1	1	11,161	1
Hull, Que.	14,654	—	—	—	2 <sup>5</sup>	—	—	2 <sup>5</sup>
Lachine, Que.	11,775	—	—	—	1 <sup>4</sup>	—	—	1 <sup>4</sup>
LaSalle, Que.	13,232	—	—	—	1 <sup>4</sup>	—	—	1 <sup>4</sup>
Laval, Que.	44,831	—	—	—	2 <sup>4</sup>	—	—	2 <sup>4</sup>
Moncton, N.B.	11,605	1	—	7,920	—	1	8,431	—

For footnotes, see end of table, p. 976.

**13.—Estimated Numbers and Circulations of Reporting English-Language and French-Language Newspapers Published in Incorporated Centres of Over 30,000 Population, 1970 and 1971—concluded.**

Incorporated Centre	Households (Census 1966)	1970			1971		
		Daily		Weekly	Daily		Weekly
		No.	No.	Circulation	No.	No.	Circulation
FRENCH-LANGUAGE NEWSPAPERS—concluded							
Montreal, Que.....	368,669	4	434,945	30 <sup>6</sup>	4	502,950	30 <sup>7</sup>
Ottawa, Ont.....	81,703	1	34,951	—	1	38,218	—
Quebec, Que.....	44,589	3	169,801	3 <sup>6</sup>	3	198,110	4 <sup>2</sup>
St. Boniface, Man.....	11,205	—	—	1	—	—	1
Ste. Foy, Que.....	11,021	—	—	1	—	—	2
St. Laurent, Que.....	15,865	—	—	1 <sup>4</sup>	—	—	1 <sup>4</sup>
Shawinigan, Que.....	7,320	—	—	2	—	—	2
Sherbrooke, Que.....	19,101	1	37,656	—	1	42,538	—
Sudbury, Ont.....	21,486	—	—	1	—	—	1
Trois-Rivières, Que.....	14,123	1	44,846	—	1	49,518	1
Vancouver, B.C.....	138,449	—	—	1	—	—	1
Verdun, Que.....	22,405	—	—	1 <sup>4</sup>	—	—	1

<sup>1</sup> Weekend newspaper.

<sup>2</sup> Includes two weekend newspapers.

<sup>3</sup> Includes three weekend newspapers.

<sup>4</sup> Bilingual.

<sup>6</sup> Includes one weekend newspaper.

<sup>6</sup> Includes 13 bilingual weeklies and 16 weekend newspapers.

<sup>7</sup> Includes 13 bilingual weeklies and 15 weekend newspapers.

**14.—Estimated Numbers of Foreign-Language Publications, 1970 and 1971**

Language	1970	1971	Language	1970	1971
No.	No.	No.	No.	No.	No.
Arabic.....	1	1	Latvian.....	1	1
Byelorussian.....	1	1	Lithuanian.....	3	3
Chinese.....	4	5	Maltese.....	1	—
Croat.....	4	4	Norwegian.....	1	1
Czech.....	2	2	Polish.....	3	3
Danish.....	1	1	Portuguese.....	6	7
Dutch.....	8	7	Serbian.....	3	3
Estonian.....	2	2	Slovak.....	3	3
Finnish.....	2	2	Slovenian.....	1	1
German.....	11	11	Spanish.....	1	2
Greek.....	8	4	Swedish.....	3	2
Hungarian.....	8	7	Ukrainian.....	19	19
Icelandic.....	1	1	Yiddish.....	4	4
Italian.....	12	12			
Japanese.....	2	2	<b>Totals.....</b>	<b>116</b>	<b>111</b>

**15.—Estimated Numbers of Magazines and Related Publications, by Broad Classifications, 1970 and 1971**

Classification	1970	1971	Classification	1970	1971
No.	No.	No.	No.	No.	No.
Agricultural and rural.....	58	57	Professions (engineering, architecture, law, accountancy, photography, etc.).....	29	26
Construction.....	16	15	Religious.....	27	29
Educational.....	124	135	Services and directories.....	101	88
Finance and insurance.....	20	19	Sports and entertainment.....	83	80
Government and government services.....	23	21	Trade, industry and related publications.....	200	197
Home, social and welfare.....	56	60	Transportation and travel.....	44	44
Labour.....	9	7	Miscellaneous.....	17	15
Pharmaceutical, medical, dental and nursing.....	60	63	<b>Totals.....</b>	<b>867</b>	<b>856</b>

**Revenue from Printing and Publishing.**—One of the industrial groups for which information is collected by Statistics Canada in its annual Census of Manufactures is the printing, publishing and allied industries group which includes establishments engaged primarily in the publishing and printing of newspapers, magazines, periodicals, books, almanacs, maps, guides and the like, as well as establishments printing such publications for publishers, publishing firms that do no printing, and engraving, stereotyping and allied industries. Of interest in connection with press statistics is the amount of revenue received by these industries from advertising and from subscriptions or sales, which is given for the years 1968 and 1969 in Table 16. Additional data on manufacturing activity of this industrial group are included in Chapter XV on Manufactures.

**16.—Revenue from Advertising and from Subscriptions or Sales of Newspapers, Periodicals and Books, 1968 and 1969**

Classes	1968			1969		
	Net Revenue <sup>1</sup> from—			Net Revenue <sup>1</sup> from—		
	Adver- tising	Subscrip- tions and Sales	Total	Adver- tising	Subscrip- tions and Sales	Total
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Newspapers and Periodicals—</b>						
Newspapers, daily.....	260,072	97,259	357,331	296,159	105,115	401,274
Retail.....	142,056	...	...	156,459	...	...
Classified.....	61,605	...	...	73,463	...	...
National.....	56,411	...	...	66,236	...	...
Newspapers, national weekend.....	17,227	8,826	26,053	19,395	8,466	27,861
Local.....	1,412	...	...	2,132	...	...
National.....	15,815	...	...	17,263	...	...
Newspapers, weekly, semi-weekly, tri-weekly, etc.....	46,608	15,063	61,672	46,431	11,963	58,394
Local.....	35,844	...	...	36,425	...	...
National.....	10,765	...	...	10,006	...	...
Controlled distribution weekly newspapers....	3,294	195	3,489	3,956	420	4,376
Local.....	3,057	...	...	3,609	...	...
National.....	237	...	...	447	...	...
Magazines of general circulation.....	23,765	14,804	38,568	26,448	15,692	42,140
Telephone and city directories <sup>2</sup> .....	43,330	2,671	46,001	43,331	1,974	50,305
Trade, technical, professional and financial publications.....	28,067	7,061	35,129	30,683	8,768	39,451
Agricultural publications.....	5,893	1,954	7,847	6,255	1,028	7,283
Religious publications.....	517	4,809	5,326	486	5,411	5,897
School and collegiate publications.....	246	455	701	281	360	641
Fraternal publications.....	352	387	738	331	345	676
All other periodicals.....	2,339	3,175	5,515	2,297	3,365	5,662
<b>Totals, Newspapers and Periodicals...</b>	<b>431,710</b>	<b>156,639</b>	<b>588,370</b>	<b>481,053</b>	<b>162,907</b>	<b>643,957</b>
<b>Books—</b>						
Books published and printed.....	...	17,410	17,410	...	17,610	17,610
Books published only.....	...	36,392	36,392	...	37,610	37,610
<b>Totals, Books.....</b>	<b>...</b>	<b>53,802</b>	<b>53,802</b>	<b>...</b>	<b>55,220</b>	<b>55,220</b>

<sup>1</sup> Net revenue from advertising excludes commissions paid to recognized advertising agencies and all cash discounts; net revenue from subscriptions and sales excludes commissions paid to indirectly employed sales agents who are not regular employees.

<sup>2</sup> Includes telephone directories published by telephone companies.



# CHAPTER XX.—DOMESTIC TRADE AND PRICES

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*The interpretation of the symbols used in the tables throughout the Year Book will be found on p. vii of this volume.*

## PART I.—THE MOVEMENT AND MARKETING OF COMMODITIES

Domestic trade is broad in terms of scope, complex in terms of activity, and volatile in the forms it takes. It encompasses all values added to commodities by agencies and services connected with the warehousing, distribution and sale of goods within each province as well as between provinces. Domestic trade is engaged in or facilitated by manufacturers, wholesale and retail establishments, mail-order houses, service trades, warehouse operators and other distributors, and by such "outside" agencies as banks, insurance companies, railway and trucking companies, advertising agencies and market research houses. It should be noted, however, that the use of the term "domestic trade" should not be interpreted as meaning that all business activities undertaken by Canadian businesses are limited to the boundaries of Canada. For example, wholesalers (who occupy a prominent position in domestic trade) are often engaged in import and export activities.

In recent years, a considerable degree of interest and speculation has been focused on the service trades, which embrace a wide spectrum of activities engaged in by professional, business and personal service establishments. Included also are the amusement and recreation services, which include regular and drive-in movie theatres, bowling alleys, health

clubs, golf courses, race tracks and other sports activities, and the fast-growing accommodation and food service fields, comprising hotels, motels, tourist facilities, restaurants and drive-in "fast food" outlets.

The degree of interest being shown in the services field is further indicated by the number of trades surveyed for the first time in the 1971 Census. These include, in the amusement and recreation services group, marinas, ski-facility operators, driving ranges and miniature golf courses; and, in the business services group, computer services, media representatives, architects, professional engineers and other engineering and scientific services, lawyers and notaries, and management and business consultants. However, services provided by doctors, dentists, nurses, hospitals and educational institutions remain outside the scope of the Census of Merchandising and Services.

Only certain phases of the broad and ever-widening field of domestic trade (mainly the retail, wholesale and service trades) are covered in this Chapter but, wherever possible, references are given to related material appearing elsewhere in this publication. The arrangement of material in a volume such as the Year Book is governed by the necessity of interpretation from various perspectives. The Index will be found useful in this respect.

## Section 1.—Merchandising and Service Businesses\*

Data on merchandising and service activities are derived principally from a periodic census (or full-coverage survey) of the businesses engaged in such activities. The first census was taken in 1931, followed by similar censuses in 1941, 1951 and 1961. The reports for 1961, which provided a wider range of data than any previous census, contained information on sales, inventory and credit; gross margins and operating expenses; small geographic area data; and, for "establishments" only (see footnote \*, p. 981), an analysis of sales by commodities.

The 1961 Census marked the end of the decennial census program. Commencing with 1966, the censuses of merchandising and service establishments became part of a quinquennial series in order to provide more frequent survey benchmarks and to enable publication of more up-to-date statistics than was previously possible. Subsection 1 lists the various reports produced as a result of the 1966 Census of retail and service trades and provides summary data from a special study based on the 1966 Census of wholesale trade. In the 1971 Census, the data requirements—because of greatly increased demands for information from the public and private sectors—will be considerably more detailed than at any time in the past; results of this census will begin to be available during 1973.

Each census, as it is completed, forms a new base for the various intercensal (monthly, quarterly and annual) surveys of retail, wholesale and service trades; some are sample surveys and others are carried out on a full-coverage basis. Subsection 2 contains current intercensal information obtained as a result of these surveys, relative not only to the distributive trades but to other statistical series (i.e., consumer credit) as well. It should be noted that all of these data are on the 1966 base.

### Subsection 1.—1966 Census of Merchandising and Services

#### Retail and Service Trades

Previous editions of the Year Book have included the principal statistics derived in the 1966 Census of retail and service trades. Much of this information may also be obtained in a more concise form in the *Market Research Handbook*, 1969 edition (Catalogue No. 63-514). Specific data may be obtained in one or more of the following reports.

\* Prepared (February 1972) in the Merchandising and Services Division, Statistics Canada.

Catalogue  
No.

## VOLUME VI.—RETAIL TRADE

- 97-601 *Introduction and General Review*—Description of the Census, definitions of terms used, analysis of results and samples of questionnaires, etc. (72 pp., \$1)

## LOCATION STATISTICS\*

- 97-602 *Provinces and Cities by Kind of Business*—Retail trade, by kind of business, for Canada and the provinces, 1966; retail trade, by kind of business, for census metropolitan areas, major urban areas, and other cities of 30,000 population and over, 1966; retail trade, by kind-of-business group and selected trade, for Canada and the provinces, 1961 and 1966. (136 pp., \$1.50)
- 97-603 *Counties or Census Divisions, Cities and Towns*—Retail trade, by county or census division and incorporated place of 1,000 population and over, 1966; retail trade, by kind-of-business group and selected trade, for counties or census divisions, 1966; retail trade, by kind-of-business group, for incorporated places of 2,000 population and over, 1966; retail trade, by kind-of-business group and selected trade, for incorporated cities of 30,000 population and over, 1966. (188 pp., \$1.50)
- 97-604 *Metropolitan Areas by Census Tract*—Retail trade, metropolitan areas and other cities, by kind-of-business group, by census tract, 1966. Includes maps of census tracts in metropolitan areas. (60 pp., 75 cents)
- 97-605 *Size of Business*—Retail trade, by annual sales size, by kind of business, for Canada and the provinces, 1966; retail trade by employment size, by kind-of-business group, for Canada and the provinces, 1966; retail trade by ownership size, by selected trade, for Canada and the provinces, 1966; retail trade by ownership size, by selected trade, for census metropolitan areas, major urban areas, and other cities of 30,000 population and over, 1966. (190 pp., \$2)
- 97-606 *Miscellaneous Data*—Retail trade, by form of organization, by kind-of-business group, for Canada and the provinces, 1966; retail trade, receipts from the sale of meals and lunches, by kind-of-business group and selected trade, for Canada and the provinces, 1966; retail trade, estimated receipts from repairs and services, by kind-of-business group and selected trade, for Canada and the provinces, 1966. (28 pp., 50 cents)

## ESTABLISHMENT STATISTICS\*

- 97-607 *General Statistics*—Retail establishments, by kind of business, for Canada and the provinces, 1966; retail establishments, sales by class of customer, by kind-of-business group and selected trade, for Canada and the provinces, 1966; retail establishments, accounts receivable, by kind of business, for Canada and the provinces, 1966. (58 pp., 75 cents)
- 97-608 *Analysis of Sales by Commodity*—Retail establishments, percentage distribution of sales by main merchandise lines for selected kinds of business, for Canada and the provinces, 1966. (60 pp., 75 cents)

## VOLUME VII.—SERVICE TRADES

- 97-641 *Introduction and General Review*—Description of the Census, definitions of terms used, analysis of results and samples of questionnaires, etc. (60 pp., 75 cents)

## LOCATION STATISTICS\*

- 97-642 *Provinces and Cities by Kind of Business*—Services, by kind of business, for Canada and the provinces, 1966; services, by kind of business, for census metropolitan areas, major urban areas, and other cities of 30,000 population and over, 1966; services, by kind-of-business group and selected trade, for Canada and the provinces, 1961 and 1966. (136 pp., \$1.50)
- 97-643 *Counties or Census Divisions and Places of 1,000 Population and Over*—Services, principal statistics, by county or census division and incorporated places of 1,000 population and over, 1966; services, by kind-of-business group and selected trade, for counties or census divisions, 1966; services, by kind-of-business group and selected trade, for incorporated cities of 30,000 population and over, 1966. (148 pp., \$1.50)
- 97-644 *Metropolitan Areas by Census Tracts*—Services, metropolitan areas and other cities, by kind-of-business group, by census tract, 1966. Includes maps of census tracts in metropolitan areas. (60 pp., 75 cents)

For footnote see p. 981.

## VOLUME VII.—SERVICE TRADES—concluded

Catalogue  
No.

## LOCATION STATISTICS—concluded

- 97-645 *Size of Business and Miscellaneous Data*—Services, by annual receipts size, by kind of business, for Canada and the provinces, 1966; services, by employment size, by kind-of-business group, for Canada and the provinces, 1966; services, by ownership size by selected trade, for Canada and the provinces, 1966; services, by form of organization, for Canada and the provinces, 1966; services, receipts from the sale of meals and lunches, by selected trade, for Canada and the provinces, 1966. (96 pp., \$1)

## ESTABLISHMENT STATISTICS\*

- 97-647 *General Statistics*—Service establishments, by kind of business, for Canada and the provinces, 1966; percentage distribution of source of receipts for reporting service establishments, by kind of business, for Canada and the provinces, 1966. (52 pp., 75 cents)

## Wholesale Trade

The 1966 Census of wholesale trade (see *Wholesale Trade, Establishments, 1966*, Catalogue No. 97-627) measured the aggregate business conducted by all wholesalers operating in Canada, whether Canadian or foreign-owned and whether their sales were domestic or international. The total volume of trade measured is not identical with the value of goods passing through the wholesale sector of the economy; at times, wholesale firms sell to each other and thus the value of the same merchandise may be recorded twice or more in the total volume of wholesale trade.

For the purpose of the 1966 Census, wholesalers were stratified in two ways—into five *types of operations*, as described in Table 1, and into over 150 *kinds of business* within each type of operation, as shown in Table 2. A limited comparison with 1961 Census data, based on kind-of-business “groups” is shown in Table 3. It should be noted that the results of the 1966 Census of wholesale trade were not published for trading locations—as in previous censuses—but only for *establishments*\* within *regional* boundaries.

\* For the purpose of the census, a *location* is defined as “a recognizable place of business in which the principal activity is the display and sale of goods or services to the general public for personal or household consumption”. In other words, the location series provides aggregate data on the physical locations in which retailing or service activities actually take place. The *establishment*, on the other hand, is “the smallest unit which is a separate operating entity capable of reporting those elements of input and output necessary to the calculation of gross margin, as well as employment, wages and salaries”. The location is *not* dependent on the system of accounting; the establishment is.

## 1.—Wholesale Trade (Establishments), by Type of Operation, 1966

Type of Operation	Establishments	Total Sales and Revenue <sup>1</sup>
	No.	\$'000
Primary products dealers.....	1,274	2,686,880.5
Wholesale merchants.....	24,124	18,922,389.7
Agents and brokers.....	2,216	3,731,165.3
Manufacturers' sales branches.....	499	2,637,583.5
Petroleum bulk tank plants and truck distributors.....	2,787	3,193,496.0
<b>Totals, All Types of Operation.....</b>	<b>30,900</b>	<b>31,171,515.0</b>

<sup>1</sup> Includes sales and excise taxes.



## 2.—Wholesale Trade (Establishments) by Economic Region and by Kind of Business, 1966

Kind of Business	Total Sales and Revenue <sup>1</sup>					
	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia <sup>3</sup>	Canada
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Amusement, Sporting and Photographic Goods.</b>	<b>5,000.8</b>	<b>78,879.4</b>	<b>215,239.5</b>	<b>20,955.2</b>	<b>30,336.9</b>	<b>350,411.8</b>
Sporting goods (general line).....	494.3	10,579.0	12,280.8	4,345.3	7,345.2	35,044.6
Toys, novelties and fireworks.....	<sup>2</sup>	42,018.7	64,335.0	<sup>2</sup>	11,167.2	129,633.5
Other amusement and sporting goods.....	63.4	12,966.7	21,207.1	2,485.3	4,028.1	40,750.6
Photographic equipment and supplies.....	<sup>2</sup>	13,315.0	117,416.6	<sup>2</sup>	7,796.4	144,983.1
<b>Automotive.</b>	<b>84,166.8</b>	<b>361,703.9</b>	<b>696,922.2</b>	<b>332,059.3</b>	<b>172,104.6</b>	<b>1,646,956.8</b>
Automotive parts and accessories.....	41,009.1	187,814.7	385,671.4	137,221.6	75,426.0	827,142.8
Tires and tubes.....	8,514.2	35,159.3	66,048.8	26,481.1	16,047.8	152,251.2
Other automotive equipment.....	<sup>2</sup>	4,215.9	20,336.9	3,498.0	"	19,594.8
Automotive parts rebuilders.....	—	<sup>2</sup>	20,785.6	1,589.7	<sup>2</sup>	24,364.6
Motor vehicles.....	<sup>2</sup>	<sup>2</sup>	214,079.5	163,268.9	78,573.5	623,603.4
<b>Beer, Wine and Distilled Spirits.</b>	<b>3,020.0</b>	<b>118,090.9</b>	<b>11,202.9</b>	<b><sup>2</sup></b>	<b>"</b>	<b>135,010.0</b>
<b>Chemicals, Drugs and Allied Products.</b>	<b>30,220.8</b>	<b>246,526.1</b>	<b>277,642.2</b>	<b>94,987.8</b>	<b>82,149.9</b>	<b>731,526.3</b>
Industrial chemicals.....	<sup>2</sup>	94,902.8	108,902.8	"	41,910.5	295,183.8
Drugs and drug sundries (general line).....	9,387.0	19,472.6	95,992.7	36,667.0	26,795.7	188,315.0
Drugs and patent medicines (specialty lines).....	<sup>2</sup>	87,772.8	12,658.9	3,003.7	"	106,885.0
Drug sundries.....	<sup>2</sup>	8,474.8	4,732.0	<sup>2</sup>	4,855.4	33,285.1
Soap and toilet preparations.....	1,292.3	<sup>2</sup>	28,045.6	2,961.0	"	53,713.5
Other chemicals, drugs and allied products.....	<sup>2</sup>	<sup>2</sup>	27,310.2	"	4,495.4	54,144.4
<b>Coal and Coke.</b>	<b>1,205.3</b>	<b>"</b>	<b>74,917.7</b>	<b><sup>2</sup></b>	<b><sup>2</sup></b>	<b>112,734.6</b>
<b>Dry Goods and Apparel.</b>	<b>11,618.0</b>	<b>567,702.2</b>	<b>341,212.4</b>	<b>133,111.9</b>	<b>104,121.9</b>	<b>1,157,766.4</b>
Clothing and/or furnishings (general line).....	2,798.3	82,251.4	46,434.9	43,838.1	18,736.0	194,058.7
Clothing, men's and boys'.....	<sup>2</sup>	<sup>2</sup>	3,892.5	6,987.1	7,161.6	24,753.6
Furnishings, men's and boys'.....	—	10,363.3	2,856.4	7,343.9	5,635.2	26,198.8
Work clothing.....	<sup>2</sup>	<sup>2</sup>	1,284.8	<sup>2</sup>	<sup>2</sup>	2,821.0
Clothing, women's.....	—	34,597.4	53,790.8	21,167.0	15,733.9	125,289.1
Hosiery, underwear and other women's apparel and accessories.....	—	21,308.5	21,419.5	<sup>2</sup>	<sup>2</sup>	49,823.5
Fur and fur clothing.....	—	18,981.9	5,290.3	"	<sup>2</sup>	27,506.7
Millinery and millinery supplies.....	—	6,041.6	1,186.0	<sup>2</sup>	<sup>2</sup>	8,663.9
Shoes and other footwear.....	2,998.9	37,355.2	63,935.7	16,992.0	11,163.6	132,445.4
Dry goods (general line).....	5,532.9	138,432.9	49,090.9	15,737.4	22,534.9	231,329.0
Piece goods.....	—	161,226.6	59,362.6	11,138.2	5,771.6	237,499.0
Notions.....	<sup>2</sup>	16,893.0	7,296.2	1,953.2	<sup>2</sup>	27,148.8
Miscellaneous dry goods, n.e.s.....	—	32,519.9	25,371.8	4,635.8	7,701.4	70,228.9
<b>Electrical Goods.</b>	<b>52,536.1</b>	<b>295,949.4</b>	<b>452,339.6</b>	<b>135,813.6</b>	<b>95,478.0</b>	<b>1,032,116.7</b>
Electrical merchandise (general line).....	25,341.5	69,771.0	148,480.2	53,314.4	36,297.1	333,204.2
Electrical appliances (general line)	9,586.5	7,401.6	16,899.5	<sup>2</sup>	<sup>2</sup>	53,972.2
Radios and television sets and equipment.....	5,006.8	61,405.1	102,310.7	25,116.1	20,791.9	214,630.6
Other household electrical appliances (specialty line).....	<sup>2</sup>	15,149.5	14,952.6	1,307.8	"	39,410.3
Electrical wiring supplies and construction materials.....	3,792.0	93,638.5	83,478.8	20,409.7	14,438.6	215,757.6
Electrical apparatus and equipment.....	<sup>2</sup>	23,067.3	17,107.0	"	"	50,923.7
Other electrical specialties.....	5,089.6	25,516.4	69,110.8	14,592.3	9,909.0	124,218.1
<b>Farm Products (Raw Materials).</b>	<b>13,411.8</b>	<b>351,281.6</b>	<b>801,930.1</b>	<b>3,596,810.0</b>	<b>524,615.0</b>	<b>5,288,048.5</b>
Flowers and nursery stock.....	—	3,675.0	12,589.8	3,739.5	6,463.4	26,467.7
Grain.....	"	254,240.1	<sup>2</sup>	3,020,804.0	473,966.9	3,882,171.7
Raw furs.....	<sup>2</sup>	22,591.9	5,308.3	14,463.8	<sup>2</sup>	49,099.6
Hides and skins.....	<sup>2</sup>	24,489.3	27,796.5	2,523.8	<sup>2</sup>	57,523.5
Wool and mohair.....	—	<sup>2</sup>	12,102.4	<sup>2</sup>	—	12,677.8
Livestock.....	4,864.6	42,429.9	439,312.1	554,385.9	27,035.2	1,068,027.7
Tobacco (leaf).....	—	<sup>2</sup>	"	—	"	<sup>2</sup>

<sup>1</sup> Includes sales and excise taxes.<sup>2</sup> Confidential.<sup>3</sup> Includes the Yukon and Northwest Territories.

**2.—Wholesale Trade (Establishments) by Economic Region and by Kind of Business,**  
**1966—continued**

Kind of Business	Total Sales and Revenue <sup>1</sup>					
	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia <sup>3</sup>	Canada
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Farm Products (Raw Materials)</b> —concluded						
Miscellaneous farm products (raw materials).....	2	—	2	2	2	2
<b>Farm Supplies</b> .....	10,627.3	67,270.9	214,797.7	145,193.3	21,734.1	459,623.3
Farm supplies (general line).....	3,096.5	15,744.3	80,061.4	86,344.2	12,097.9	197,344.3
Feed, hay and grain.....	7,026.6	37,953.7	87,433.0	17,485.7	7,826.3	157,725.3
Fertilizers and fertilizer material (agricultural chemicals).....	180.9	2	11,351.1	4,359.0	2	23,231.7
Seeds.....	2	5,967.6	2	27,204.4	2	60,046.6
Seed processing plants.....	—	—	2,827.9	7,943.2	205.4	10,976.5
Other farm supplies.....	2	2	—	1,856.8	2	10,298.9
<b>Food Products (except Groceries)</b> <b>and Tobacco</b> .....	299,067.2	983,391.2	940,718.4	288,167.9	269,923.4	2,781,208.1
Confectionery.....	17,231.6	38,399.9	48,199.3	16,778.7	10,387.5	130,997.0
Soft drinks.....	12,195.4	3,300.2	2,130.2	221.8	704.9	18,552.5
Cigars, cigarettes and tobacco.....	41,959.9	193,057.5	223,422.7	89,061.8	54,412.7	601,914.6
Dairy and poultry products (general line).....	2	10,844.5	2	2	2	49,400.1
Dairy products.....	2	101,928.1	19,593.3	1,282.5	2	124,259.2
Poultry products.....	2	47,597.4	69,974.7	2	8,058.6	136,173.2
Fish and sea foods.....	44,863.9	19,345.0	2	2	32,980.7	131,814.9
Frozen or frosted foods.....	4,238.0	17,446.0	72,223.4	8,899.8	9,717.3	112,524.5
Fruits and vegetables, fresh (general line).....	36,403.7	193,310.1	149,625.8	18,618.3	41,583.9	439,541.8
Fruits (fresh).....	10,972.9	30,454.1	61,746.5	13,744.8	41,166.1	158,084.4
Vegetables (fresh).....	32,704.0	17,341.2	44,130.6	3,156.3	7,782.9	105,115.0
Meats and meat products.....	81,063.4	278,731.4	141,715.8	45,585.6	38,259.1	585,355.3
Other food products (except groceries) (general line).....	2	17,485.6	30,541.1	2	18,205.3	139,020.7
Other food products (except groceries).....	2	14,150.2	24,569.4	2	2,961.8	48,454.9
<b>Forest Products (except Lumber)</b> Pulpmooods.....	7,108.7	26,485.3	2,694.5	2,738.8	39,559.7	78,587.0
Other forest products.....	6,701.3	22,565.8	1,636.9	2	2	32,703.4
	407.4	3,919.5	1,057.6	2	2	45,883.6
<b>Furniture and House Furnishings</b> .....	11,532.3	168,298.4	193,029.4	49,794.8	32,734.5	455,389.4
Household furniture.....	2	38,390.4	2	9,309.4	5,283.1	62,877.0
Office furniture.....	2,223.6	16,102.5	18,704.9	3,970.8	4,650.9	45,652.7
Brooms and brushes.....	—	2	2	—	—	2,479.2
China, glassware, crockery and pottery.....	1,934.8	25,486.8	45,354.5	2,401.3	3,933.5	79,110.9
Floor covering.....	6,465.4	58,670.4	70,011.7	28,647.5	14,490.8	178,285.8
Household linens, draperies, etc... Other house furnishings.....	2	21,467.6	25,853.1	2	1,956.4	53,378.6
Musical instruments and sheet music.....	—	2	10,108.4	2	1,305.0	14,977.3
	—	3,930.3	12,550.5	1,032.3	1,114.8	18,627.9
<b>General Merchandise</b> .....	2	2	37,112.8	10,030.3	4,151.4	117,652.4
<b>Groceries and Food Specialties</b> ...	291,734.3	841,535.2	1,117,167.4	691,096.2	408,000.3	3,349,533.4
Groceries (general line).....	267,060.9	667,225.4	772,633.6	621,930.1	344,212.1	2,673,062.1
Biscuits and other bakery products.....	1,790.4	24,068.1	33,139.8	8,432.1	14,037.7	81,468.1
Canned goods.....	5,231.0	45,164.9	52,543.3	12,214.3	40,535.5	155,689.0
Coffee, tea, spices and cocoa.....	—	11,297.0	2	2	2	27,920.3
Flour.....	2	2	2	2	2	2
Sugar.....	—	2	2	—	—	2
Other grocery specialties.....	2	29,407.2	37,231.4	2	7,324.9	113,190.5
<b>Hardware</b> .....	46,474.2	152,647.8	204,413.0	103,965.1	54,310.2	561,810.3
Hardware (general line).....	44,782.1	126,428.6	114,645.7	88,440.1	46,545.7	420,842.2
Hardware (specialty line).....	1,692.1	26,219.2	89,767.3	15,525.0	7,764.5	140,968.1
<b>Jewellery</b> .....	2	31,690.7	30,359.2	2	10,052.1	78,655.7
Jewellery (general line).....	2	2	12,441.2	4,942.4	8,940.3	40,530.2
Jewellery (specialty line).....	2	2	15,197.4	—	2	29,647.9

<sup>1</sup> Includes sales and excise taxes.<sup>2</sup> Confidential.<sup>3</sup> Includes the Yukon and Northwest Territories.

**2.—Wholesale Trade (Establishments) by Economic Region and by Kind of Business,  
1966—continued**

Kind of Business	Total Sales and Revenue <sup>1</sup>					
	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia <sup>2</sup>	Canada
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Jewellery—concluded</b>						
Watch materials, jewellers' tools and supplies.....	—	2	2,720.6	2	2	8,477.6
<b>Leather and Leather Goods.....</b>	<b>458.4</b>	<b>22,149.0</b>	<b>13,865.6</b>	<b>2,315.0</b>	<b>1,306.0</b>	<b>40,094.0</b>
Leather and leather goods (general line).....	2	14,970.2	7,690.7	2	2	23,742.1
Leather and shoe findings.....	2	7,178.8	6,174.9	2	2	16,351.9
<b>Lumber and Building Materials (other than Metal).....</b>	<b>103,613.2</b>	<b>531,558.4</b>	<b>724,174.8</b>	<b>375,196.3</b>	<b>466,612.6</b>	<b>2,201,155.3</b>
Building materials (general line).. Glass.....	39,313.0 2	20,097.9	23,365.7	64,398.2 2	41,420.0 2	361,949.5 63,884.2
Paints, varnishes, lacquers and enamels.....	482.1	8,467.4	8,648.0	4,490.3	1,852.1	23,939.9
Paints, glass and decorators' sup- plies.....	2	2	21,629.4	2	2	46,856.1
Wallpaper.....	—	2	2	—	—	1,501.5
Insulation, siding and/or roofing materials.....	1,578.7	45,033.2	17,254.8	12,589.7	3,658.0	80,114.4
Other specialty lines.....	592.1	22,892.8	27,981.4	18,166.4	7,472.5	77,105.2
Lumber.....	12,579.3	127,625.8	131,748.3	80,430.0	160,050.6	512,434.0
Lumber and millwork.....	42,893.6	165,557.7	408,876.7	173,648.4	242,394.1	1,033,370.5
<b>Machinery, Equipment and Sup- plies.....</b>	<b>174,334.7</b>	<b>750,760.6</b>	<b>1,191,840.2</b>	<b>1,115,041.2</b>	<b>379,777.8</b>	<b>3,611,754.5</b>
Commercial Machinery, Equip- ment and Supplies—						
Commercial refrigeration equip- ment and supplies.....	2	16,244.1	22,215.7	5,388.3	2	47,537.0
Hotel and restaurant equipment and supplies (non-food).....	2	12,153.1	2	6,615.7	2,210.9	29,755.0
Office machines and equipment.....	8,384.4	34,718.9	52,529.4	13,787.5	13,154.7	122,674.9
Store machines and fixtures.....	598.0	29,633.8	9,591.4	2,395.2	4,192.1	46,410.5
Other commercial machinery and equipment.....	2	5,226.9	6,765.9	1,676.2	1,364.2	2
Construction machinery and equipment (new and used)....	64,633.4	93,502.5	154,595.0	75,508.3	81,606.0	469,845.2
Farm machinery and equip- ment.....	24,922.9	100,107.1	243,684.7	644,770.6	36,629.7	1,050,115.0
<b>Industrial Machinery, Equipment and Supplies—</b>						
Industrial machinery, equip- ment and supplies (general line).....	26,878.0	86,306.1	106,938.0	86,736.5	51,928.8	358,787.4
Belting, hose, packing and mechanical rubber goods.....	1,284.0	2,682.8	13,001.1	3,504.5	2,720.9	23,193.3
Packaging, wrapping, canning and bottling machinery.....	2	7,495.3	16,350.0	2	1,363.3	27,734.9
Metal working machinery.....	2	55,473.2	135,397.8	9,867.3	2	213,987.3
Materials handling equipment.. Mining machinery, equipment and supplies.....	2 1,951.5	9,587.9 16,240.7	21,204.6 39,490.2	2 11,492.9	10,914.3 9,901.4	67,900.6 79,076.7
Oil-well and oil-refining mach- inery and equipment.....	2	2	5,853.3	106,102.0	7,040.0	121,273.9
Power-house and power-trans- mission equipment.....	3,309.3	21,563.2	38,494.0	16,286.0	12,503.3	92,155.8
Printers' and lithographers' machinery, equipment and supplies.....	2	10,646.7	20,165.4	1,489.2	2	36,346.5
Textile machinery, equipment and supplies.....	—	14,537.9	2	1,041.1	2	23,308.3
Miscellaneous industrial mach- inery, equipment and supplies	13,390.1	66,670.7	83,912.7	21,282.6	74,973.0	260,229.1
Industrial machinery, used.....	—	6,389.8	7,240.4	932.5	535.8	15,098.5
<b>Professional Equipment and Sup- plies—</b>						
Church equipment and religious goods.....	2	3,032.2	2,825.5	787.2	2	7,153.2
Dentists' equipment and sup- plies.....	1,001.0	5,533.8	10,312.0	3,913.7	2,545.1	23,305.6

<sup>1</sup> Includes sales and excise taxes.<sup>2</sup> Confidential.<sup>3</sup> Includes the Yukon and Northwest Territories.

**2.—Wholesale Trade (Establishments) by Economic Region and by Kind of Business,**  
1966—continued

Kind of Business	Total Sales and Revenue <sup>1</sup>					
	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia <sup>3</sup>	Canada
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Machinery, Equipment and Supplies—concluded</b>						
Professional Equipment and Supplies—concluded						
School equipment and supplies	1,290.0	7,039.4	9,669.2	3,134.3	2	2
Scientific and laboratory equipment and supplies	987.1	28,624.3	30,209.1	8,230.4	7,671.1	75,722.0
Surgical, medical and hospital equipment and supplies	4,754.9	21,334.2	36,592.4	14,283.1	6,970.8	83,935.4
Other professional equipment and supplies	683.6	6,171.5	14,188.7	5,979.9	1,417.1	28,440.8
Service Equipment and Supplies—						
Barber and beauty salon equipment and supplies	562.8	6,244.4	9,614.3	3,021.1	1,353.1	20,795.7
Fire protection equipment and supplies	2	4,828.7	5,778.5	2,287.5	2,004.5	2
Janitors' equipment and supplies	2	3,615.9	2	4,999.9	1,813.8	17,781.2
Laundry and dry cleaners' equipment and supplies	2	7,053.9	2	5,368.4	4,252.8	28,068.8
Motion picture apparatus and supplies	—	1,660.0	2,863.7	2	2	5,445.4
Other service equipment and supplies	2	10,371.9	17,344.1	2	5,391.4	39,593.6
Transportation Equipment and Supplies—						
Aircraft and aeronautical equipment and supplies	—	7,846.7	22,520.7	2	2	36,211.9
Marine equipment and supplies	11,582.0	13,925.4	11,922.1	8,030.1	14,075.8	59,535.4
Railway equipment and supplies	2	2	8,932.9	2	2	45,986.2
Other transportation equipment and supplies	—	—	—	2	—	2
<b>Metals and Metal Work</b>	<b>5,682.1</b>	<b>326,751.3</b>	<b>530,647.0</b>	<b>74,716.7</b>	<b>270,189.4</b>	<b>1,207,986.5</b>
Iron and steel (general line)	2	160,359.0	135,319.4	2	165,142.4	485,588.0
Sheet metal and metal work	2	2	8,410.5	2	2	15,671.6
Structural steel	—	16,154.6	45,422.7	908.5	2	64,260.4
All other metals and metal work (except non-ferrous products)	2	2	65,636.0	39,882.0	41,036.8	213,199.7
Non-ferrous metals and metal work	2	82,611.7	275,858.4	8,807.9	2	429,266.8
<b>Paper and Paper Products</b>	<b>15,767.6</b>	<b>627,324.9</b>	<b>262,446.6</b>	<b>74,271.3</b>	<b>135,827.2</b>	<b>1,115,637.6</b>
Fine papers	2	33,163.3	59,119.4	7,328.2	2	108,990.7
Newsprint	—	2	—	—	2	307,483.7
Paper and paper products (general line)	2	188,118.1	97,053.5	49,074.7	2	452,582.2
Stationery and stationery supplies	3,408.0	22,944.1	2	2	10,082.2	112,334.2
Wrapping paper and paper bags	2	2	2	2	4,474.4	26,336.1
Other paper and paper goods	2	69,150.9	37,851.1	2	2	109,910.7
<b>Petroleum and Petroleum Products</b>	<b>320,473.3</b>	<b>760,249.2</b>	<b>1,066,472.8</b>	<b>701,381.6</b>	<b>344,919.1</b>	<b>3,193,496.0</b>
<b>Plumbing, Refrigeration and Heating Equipment and Supplies</b>	<b>36,848.0</b>	<b>154,963.5</b>	<b>258,082.9</b>	<b>123,814.6</b>	<b>69,390.8</b>	<b>643,099.8</b>
Air conditioning and ventilating equipment	2	10,268.6	18,064.4	2	2	2
Cooling and refrigeration equipment and supplies (non-electric)	—	2	—	2	2	2
Heating equipment and supplies	2	2	21,917.1	11,394.8	2	62,767.7
Plumbing equipment and supplies	16,318.2	81,208.5	106,717.6	66,333.9	34,147.2	304,725.4
Plumbing and heating equipment and supplies (general line)	16,239.1	43,685.8	111,383.8	41,228.4	25,574.4	238,111.5
<b>Waste Materials (Including Scrap Metal)</b>	<b>19,736.6</b>	<b>98,681.4</b>	<b>178,410.3</b>	<b>24,665.7</b>	<b>17,453.4</b>	<b>338,947.4</b>
Junk and scrap (general line)	1,901.5	3,445.0	6,187.3	524.9	3,010.8	15,069.5
Scrap metal	2	79,708.7	158,886.4	23,405.1	2	290,759.8
Waste materials (other than scrap metal)	2	15,527.7	13,336.6	735.7	2	33,118.1

<sup>1</sup> Includes sales and excise taxes.<sup>2</sup> Confidential.<sup>3</sup> Includes the Yukon and Northwest Territories.



## 2.—Wholesale Trade (Establishments) by Economic Region and by Kind of Business, 1966—concluded

Kind of Business	Total Sales and Revenue <sup>1</sup>					
	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia <sup>2</sup>	Canada
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Other Kinds of Business</b> .....	<b>27,353.4</b>	<b>152,748.3</b>	<b>228,583.3</b>	<b>34,267.6</b>	<b>39,360.1</b>	<b>482,312.7</b>
Books, periodicals and newspapers	2	2	83,238.1	10,549.5	13,629.7	183,690.8
Optical goods	—	5,314.7	5,334.1	933.4	1,387.4	12,969.6
Containers, except wood, paper or glass	—	2	1,340.0	—	2	2,190.6
Textiles and textile materials (other than dry goods)—						
Cordage and twine	2	2	2	—	—	2
Other	3,965.8	3,894.7	5,644.6	2	2,101.4	2
Second-hand goods (except machinery and automotive)	7,998.6	3,185.3	2	2	2,808.2	40,730.5
Miscellaneous kinds of business <i>n.e.s.</i>	2	87,452.6	105,515.3	19,950.4	2	243,175.9
<b>Totals, All Establishments</b>	<b>1,592,077.6</b>	<b>7,791,873.1</b>	<b>10,066,222.5</b>	<b>5,137,142.6</b>	<b>3,584,199.2</b>	<b>31,171,515.0</b>

<sup>1</sup> Includes sales and excise taxes.<sup>2</sup> Confidential.<sup>3</sup> Includes the Yukon and Northwest Territories

Wholesale trade in Canada rose from \$19,740,000,000 in 1961 to nearly \$31,172,000,000 in 1966, an increase of 57.9 p.c. or approximately 11.6 p.c. each year over the five-year period. (By way of comparison, retail trade increased 41.1 p.c. over the same period.) The largest increases during 1961-66 took place in the paper and paper products group (+197.7 p.c.), the amusement, sporting and photographic goods group (+165.8 p.c.), and the metals and metal work group (+106.2 p.c.). At the same time, the farm products group rose by only 24.7 p.c. and the hardware group by only 20.7 p.c.

## 3.—Wholesale Trade (Establishments), by Kind-of-Business Group, 1961 and 1966

Kind-of-Business Group	Establishments			Total Sales and Revenue <sup>1</sup>		
	1961	1966	Percent- age Change 1961-66	1961	1966	Percent- age Change 1961-66
	No.	No.		\$'000	\$'000	
Amusement, sporting and photographic goods	372	560	+50.5	131,829.5	350,411.8	+165.8
Automotive	1,577	2,374	+50.5	859,883.7	1,646,956.8	+91.5
Beer, wine and distilled spirits	129	152	+17.8	83,778.9	135,010.0	+61.2
Chemicals, drugs and allied products	566	818	+44.5	427,715.2	731,526.8	+71.0
Coal and coke	69	49	-29.0	76,720.1	112,734.6	+46.6
Dry goods and apparel	1,670	1,810	+ 8.4	813,148.2	1,157,766.4	+42.4
Electrical goods	832	1,023	+23.0	621,302.8	1,032,116.7	+66.1
Farm products (raw materials)	895	866	- 3.2	4,241,753.6	5,288,048.5	+24.7
Farm supplies	1,015	1,022	+ 0.7	367,373.9	459,623.3	+25.1
Food products (except groceries) and tobacco	2,434	2,663	+ 9.4	1,957,693.2	2,781,208.1	+42.1
Forest products (except lumber)	149	160	+ 7.4	57,805.6	78,587.0	+36.0
Furniture and house furnishings	579	678	+17.1	249,404.0	455,389.4	+82.6
General merchandise	174	167	- 4.0	96,794.4	117,652.4	+21.5
Groceries and food specialties	716	889	+24.2	1,856,391.8	3,349,533.4	+80.4
Hardware	655	607	- 7.3	465,447.5	561,810.3	+20.7
Jewellery	236	270	+14.4	42,707.1	78,655.7	+84.2
Leather and leather goods	118	122	+ 3.4	30,361.0	40,094.0	+32.1
Lumber and building materials (other than metal)	2,852	2,987	+ 4.7	1,394,375.6	2,201,155.3	+57.9
Machinery, equipment and supplies	4,964	6,906	+39.1	1,797,091.0	3,611,754.5	+101.0
Metals and metal work	441	458	+ 3.9	585,970.7	1,207,986.5	+106.2
Paper and paper products	456	554	+21.5	374,753.4	1,115,637.6	+197.7
Petroleum and petroleum products	3,489	2,787	-20.1	2,448,895.2	3,193,496.0	+30.4
Plumbing, refrigeration and heating equipment and supplies	486	703	+44.7	364,246.2	643,099.8	+76.6
Waste materials (including scrap metal)	572	1,061	+85.5	191,287.4	338,947.4	+77.2
Other kinds of business	804	1,214	+51.0	203,216.5	482,312.7	+137.3
<b>Totals, All Groups</b> .....	<b>26,250</b>	<b>30,900</b>	<b>+17.7</b>	<b>19,739,946.5</b>	<b>31,171,515.0</b>	<b>+ 57.9</b>

<sup>1</sup> Includes sales and excise taxes.

## Subsection 2.—Intercensal Surveys of Retail, Wholesale and Service Trades

## Retail Trade

The trend of retail trade is one of the most accurate barometers of the economic health and well-being of the nation. In 1970, retailers absorbed 52.0 p.c. of personal disposable income available to Canadians and accounted for 56.9 p.c. of total personal expenditure on consumer goods and services. The value of retail sales, estimated from intercensal sample surveys (and revised every five years to a new census base\*), increased by 22.8 p.c. during the period 1966-70.

The current retail trade series shown in Table 4 reflects the many definitional changes adopted for use in the 1966 Census. A new classification, "grocery, confectionery and sundries stores", is included in the "grocery and combination stores" series; on the other hand, "home and auto supply stores" and "accessories, tire and battery stores" remain part of the "all other stores" category. The department store definition was altered significantly,\* affecting not only the department store series but the variety store, general store and "all other" store series as well. Also, a new kind of business—general merchandise stores—was taken out of the miscellaneous stores grouping and established as a separate series, commencing in 1966.

4.—Retail Trade, by Kind of Business and by Province, 1966-70

Kind of Business and Province	1966	1967	1968	1969	1970 <sup>1</sup>	Percent- age Change 1966-70
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000	
<b>Kind of Business</b>						
Grocery and combination stores.....	5,351.6	5,685.5	5,985.6	6,400.9	6,841.4	+27.8
All other food stores.....	553.7	579.2	580.7	619.7	629.1	+13.6
Department stores.....	1,973.7	2,157.8	2,444.8	2,737.1	2,852.3	+44.5
General merchandise stores.....	644.7	677.8	727.9	825.1	813.0	+26.1
General stores.....	557.9	573.1	572.0	567.3	595.7	+ 6.8
Variety stores.....	494.2	531.9	513.2	541.7	551.1	+11.5
Motor vehicle dealers.....	4,337.8	4,433.2	4,714.1	4,798.9	4,220.3	- 2.7
Service stations and garages.....	1,873.5	2,003.7	2,179.8	2,318.2	2,472.1	+32.0
Men's clothing stores.....	357.4	371.7	398.4	423.7	440.6	+23.3
Women's clothing stores.....	435.1	484.7	501.8	544.8	648.7	+26.1
Family clothing stores.....	337.5	370.9	381.4	385.5	388.4	+ 15.1
Shoe stores.....	252.0	285.2	306.5	317.7	326.3	+29.5
Hardware stores.....	355.8	366.5	392.4	391.4	398.9	+12.1
Furniture, TV and appliance stores.....	739.8	784.2	816.1	868.4	845.5	+14.3
Fuel dealers.....	475.2	461.1	471.4	465.7	492.2	+ 3.6
Drug stores.....	649.8	702.6	736.6	791.6	828.7	+27.5
Jewellery stores.....	191.6	208.2	213.7	224.9	223.6	+16.7
All other stores.....	3,104.9	3,477.5	3,774.5	4,181.8	4,396.5	+41.6
<b>Canada</b> .....	<b>22,686.4</b>	<b>24,154.8</b>	<b>25,710.8</b>	<b>27,401.4</b>	<b>27,864.4</b>	<b>+22.8</b>
<b>Province</b>						
Newfoundland.....	405.6	438.4	464.2	481.4	495.1	+22.1
Prince Edward Island.....	107.6	113.0	121.7	123.5	130.6	+21.4
Nova Scotia.....	753.0	792.7	862.3	884.1	924.0	+22.7
New Brunswick.....	594.8	635.0	687.2	702.6	734.7	+23.5
Quebec.....	5,882.1	6,379.2	6,564.9	6,961.6	7,113.3	+20.9
Ontario.....	8,625.4	9,091.0	9,884.7	10,588.4	10,808.8	+25.3
Manitoba.....	1,006.5	1,073.3	1,118.0	1,187.5	1,195.9	+18.8
Saskatchewan.....	1,046.6	1,081.5	1,081.6	1,051.8	1,016.2	- 2.9
Alberta.....	1,758.1	1,902.8	2,066.9	2,255.1	2,246.0	+27.8
British Columbia <sup>2</sup> .....	2,506.6	2,648.0	2,859.3	3,165.4	3,199.8	+27.7

<sup>1</sup> Subject to revision.<sup>2</sup> Includes the Yukon and Northwest Territories.

**Chain† and Independent Stores.**—Within the framework of retail trade, chains and independent retailers compete to achieve or retain a viable share of the total market. In

\* Details of intercensal revisions may be found in *Retail Trade, 1961-69* (Catalogue No. 63-517) and in *Retail Trade, Revisions to 1966-70 Postcensal Estimates* (Catalogue No. 63-519).

† A retail chain is defined by Statistics Canada as "an organization operating four or more retail stores in the same kind of business under the same legal ownership". A concession located in a department store is *not* considered to be a store location for the purpose of this definition.

some kinds of business, such as motor vehicle dealers, service stations and garages, food stores other than grocery and combination stores, and men's clothing stores, independent merchants have maintained a dominant position; in others, such as department stores, variety stores and general merchandise stores, chains account for the largest proportion of sales. In recent years, changes in market share have been most pronounced among women's clothing stores, grocery and combination stores, family clothing stores, hardware stores and men's clothing stores. The constantly shifting balance between chain and independent stores is shown in Tables 5 and 6.

5.—Sales of Chain and Independent Stores, by Kind of Business, 1966 and 1970

Kind of Business	Chain Stores			Independent Stores		
	1966	1970 <sup>1</sup>	Per- centage Change 1966-70	1966	1970 <sup>1</sup>	Per- centage Change 1966-70
	\$'000,000	\$'000,000		\$'000,000	\$'000,000	
Grocery and combination stores.....	2,400.7	3,484.3	+45.1	2,950.9	3,357.1	+13.8
All other food stores.....	48.4	45.9	- 5.2	505.3	583.2	+15.4
Department stores.....	1,973.7	2,852.3	+44.5	—	—	—
General merchandise stores.....	481.9	619.3	+28.5	162.8	193.7	+19.0
General stores.....	90.1	89.6	- 0.6	467.8	506.1	+ 8.2
Variety stores.....	428.5	468.3	+ 9.3	65.7	82.8	+26.0
Motor vehicle dealers.....	67.1	62.6	- 6.7	4,270.7	4,157.7	- 2.6
Service stations and garages.....	63.5	135.0	+112.6	1,810.0	2,337.1	+29.1
Men's clothing stores.....	47.1	67.4	+43.1	310.3	373.2	+20.3
Women's clothing stores.....	115.3	178.9	+55.2	319.8	369.8	+15.6
Family clothing stores.....	73.9	96.8	+31.0	263.7	291.6	+10.6
Shoe stores.....	113.3	148.8	+31.3	138.7	177.5	+28.0
Hardware stores.....	55.3	72.0	+30.2	300.5	326.9	+ 8.8
Furniture, TV and appliance stores.....	141.9	153.5	+ 8.2	597.9	692.0	+15.7
Fuel dealers.....	76.2	86.2	+13.1	399.0	406.0	+ 1.8
Drug stores.....	87.2	118.1	+35.4	562.6	710.6	+26.3
Jewellery stores.....	64.5	75.6	+17.2	127.1	148.0	+16.4
All other stores.....	1,161.0	1,763.2	+51.9	1,943.9	2,633.3	+35.5
<b>Totals, All Stores.....</b>	<b>7,489.8</b>	<b>10,517.8</b>	<b>+40.4</b>	<b>15,196.6</b>	<b>17,346.6</b>	<b>+14.1</b>

<sup>1</sup> Subject to revision.

6.—Changes in Market Share of Chain and Independent Stores, by Kind of Business, 1966 and 1970

Kind of Business	Chain Stores			Independent Stores		
	1966	1970 <sup>1</sup>	Change in Market Share 1966-70	1966	1970 <sup>1</sup>	Change in Market Share 1966-70
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
Grocery and combination stores.....	44.9	50.9	+6.0	55.1	49.1	-6.0
All other food stores.....	8.7	7.3	-1.4	91.3	92.7	+1.4
Department stores.....	100.0	100.0	—	—	—	—
General merchandise stores.....	74.7	76.2	+1.5	25.3	23.8	-1.5
General stores.....	16.1	15.0	-1.1	83.9	85.0	+1.1
Variety stores.....	86.7	85.0	-1.7	13.3	15.0	+1.7
Motor vehicle dealers.....	1.5	1.5	—	98.5	98.5	—
Service stations and garages.....	3.4	5.5	+2.1	96.6	94.5	-2.1
Men's clothing stores.....	13.2	15.3	+2.1	86.8	84.7	-2.1
Women's clothing stores.....	26.5	32.6	+6.1	73.5	67.4	-6.1
Family clothing stores.....	21.9	24.9	+3.0	78.1	75.1	-3.0
Shoe stores.....	45.0	45.6	+0.6	55.0	54.4	-0.6
Hardware stores.....	15.5	18.0	+2.5	84.5	82.0	-2.5
Furniture, TV and appliance stores.....	19.2	18.2	-1.0	80.8	81.8	+1.0
Fuel dealers.....	16.0	17.5	+1.5	84.0	82.5	-1.5
Drug stores.....	13.4	14.3	+0.9	86.6	85.7	-0.9
Jewellery stores.....	33.7	33.8	+0.1	66.3	66.2	-0.1
All other stores.....	37.4	40.1	+2.7	62.6	59.9	-2.7
<b>Totals, All Stores.....</b>	<b>33.0</b>	<b>37.7</b>	<b>+4.7</b>	<b>67.0</b>	<b>62.3</b>	<b>-4.7</b>

<sup>1</sup> Subject to revision.

**Department Stores.**—In 1970, department stores accounted for a higher proportion of total sales than most other kinds of retail business—exceeded only by grocery and combination stores and motor vehicle dealers. Their sales of \$2,852,320,000 represented 10.2 p.c. of *total* retail trade and 13.2 p.c. of the business done by competing firms (all trades other than motor vehicle dealers, fuel dealers and parts of the “all other stores” classification). Department store sales in 1970 were 44.5 p.c. higher than in 1966, the largest increase among the 18 specified kinds of business (see Table 4). However, growth among the various departments within department stores has not been consistent, as Table 7 shows.

7.—Department Store Sales, by Department, 1966 and 1970

Department	Sales		Percentage Change 1966-70
	1966 <sup>1</sup>	1970	
	\$'000	\$'000	
<b>Women's, Misses' and Children's Clothing—</b>			
Women's and misses' dresses, housedresses, aprons and uniforms.....	62,000	80,374	+29.6
Women's and misses' coats and suits.....	48,100	58,641	+21.9
Women's and misses' sportswear.....	76,200	123,689	+62.3
Furs.....	13,400	12,992	- 3.0
Infants' and children's wear and nursery equipment.....	55,500	81,118	+46.2
Girls' and teenage girls' wear.....	33,100	46,673	+41.0
Lingerie and women's sleepwear.....	42,800	53,440	+24.9
Intimate apparel.....	33,200	40,173	+21.0
Millinery.....	8,500	12,539	+47.5
Women's and girls' hosiery.....	30,100	50,231	+66.9
Women's and girls' gloves, mitts and accessories.....	35,000	47,820	+36.6
Women's, misses' and children's footwear.....	63,400	87,825	+38.5
<b>Totals, Women's, Misses' and Children's Clothing.....</b>	<b>501,300</b>	<b>695,515</b>	<b>+38.7</b>
<b>Men's and Boys' Clothing—</b>			
Men's clothing.....	71,500	124,617	+74.3
Men's furnishings.....	102,200	158,515	+55.1
Boys' clothing and furnishings.....	46,400	61,187	+31.9
Men's and boys' footwear.....	30,100	52,092	+73.1
<b>Totals, Men's and Boys' Clothing.....</b>	<b>250,200</b>	<b>396,411</b>	<b>+58.4</b>
<b>Food and kindred products.....</b>	<b>101,200</b>	<b>140,364</b>	<b>+38.7</b>
Toiletries, cosmetics and drugs.....	88,800	144,020	+62.2
Photographic equipment and supplies.....	27,700	45,108	+62.8
Piece goods.....	34,600	44,971	+30.0
Linens and domestics.....	58,700	73,453	+25.1
Smallwares and notions.....	21,900	38,461	+75.6
China and glassware.....	30,800	48,098	+56.2
Floor coverings.....	47,600	66,185	+39.0
Draperies, curtains and furniture covers.....	36,200	53,779	+48.8
Lamps, pictures, mirrors and all other home furnishings.....	17,900	28,739	+60.6
Furniture.....	110,600	134,196	+21.3
Major appliances.....	97,200	125,786	+29.4
Television, radio and music.....	80,100	122,012	+52.3
Housewares and small electrical appliances.....	64,400	91,357	+41.9
Hardware, paints, wallpaper, etc.....	51,400	78,720	+53.2
Plumbing, heating and building materials.....	17,300	24,649	+42.5
Jewellery.....	36,400	52,659	+44.7
Toys and games.....	41,800	62,332	+49.1
Sporting goods and luggage.....	54,400	81,271	+49.4
Stationery, books and magazines.....	50,100	73,457	+46.6
Gasoline, oil, auto accessories, repairs and supplies.....	37,400	58,806	+57.2
Receipts from meals and lunches.....	41,900	64,089	+53.0
Receipts from repairs and services.....	73,826	107,782	+46.0
All other departments.....			
<b>Totals, All Departments.....</b>	<b>1,973,726</b>	<b>2,852,320</b>	<b>+44.5</b>

<sup>1</sup> Based on extrapolations of original published data.



**Voluntary Group Stores.**—In order to stem the continuing encroachment of chains and department stores on their share of the market, independent retailers in a variety of trades have turned increasingly toward affiliation with a voluntary group organization. Through such group affiliation, independent businessmen have been afforded the opportunity to enjoy many, if not all, of the advantages accruing to chain store firms—mass purchasing power, centralized buying, lower per-unit advertising costs and a number of important management services. As sponsors and/or suppliers of many voluntary groups, wholesalers have also benefited, particularly through the streamlining of their selling and order-filling systems.

For a number of years (since 1964), Statistics Canada has carried out surveys of voluntary group stores in a wide range of retail trades. Commencing with the 1969 survey, however, the retail "universe" was split into two parts (stores affiliated with food wholesalers, and stores affiliated with other than food wholesalers) and a third sector was added (affiliated or franchised businesses in the service trades). Each sector will be surveyed in succeeding years, with the entire retail and service trade universes being covered over a three-year period. The 1969 survey applied to stores in the first sector—those affiliated with food wholesalers.

The results of the 1969 undertaking (Table 8) are not entirely conclusive, at least in the chain sector, due to classification changes that were made between 1968 and 1969. If, for example, sales of affiliated chain stores had actually increased at the same rate as in the previous year, the growth in sales over the entire 1967-69 period would have been: for affiliated chains, +21.8 p.c. and for non-affiliated chains, +18.3 p.c.—in both cases, less than the 22.5-p.c. increase experienced by affiliated independents. As concerns the independent sector, the trend of earlier years has continued; affiliation in a voluntary group has been decidedly advantageous but it has not completely stemmed the continuing growth and increasing market share of chain store organizations.

#### 8.—Sales of Grocery and Combination Stores, Affiliated and Non-affiliated, 1967-69

NOTE.—Grocery and combination stores include: grocery stores with less than 15 p.c. fresh meat; combination stores (i.e., groceries, produce and meat); and grocery, confectionery and sundries stores.

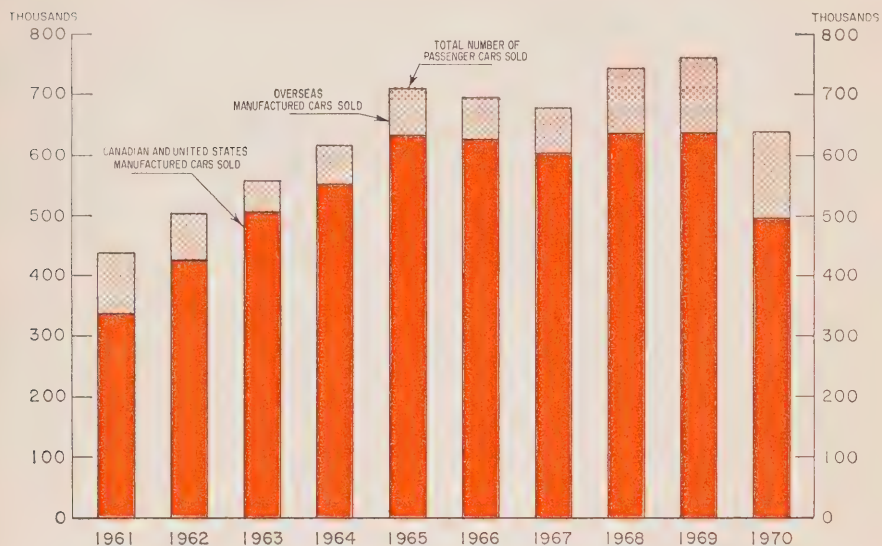
Form of Organization	1967	1968	1969	Percentage Change 1967-69
	\$'000	\$'000	\$'000	
Corporate chain stores.....	2,610,726	2,805,616	3,101,212	+18.8
Affiliated.....	531,645	565,916	558,649 <sup>1</sup>	-22.0
Non-affiliated.....	2,279,181	2,439,700	2,842,565	+24.7
Independent stores.....	3,074,787	3,179,973	3,299,730	+ 7.3
Affiliated.....	1,579,197	1,801,737	1,933,927	+22.5
Non-affiliated.....	1,495,590	1,378,236	1,365,803	- 8.7
<b>Totals, All Stores.....</b>	<b>5,685,513</b>	<b>5,985,589</b>	<b>6,400,942</b>	<b>+12.6</b>

<sup>1</sup> The decline from 1968 is attributable to the reclassification of a number of chain store organizations from affiliated to non-affiliated status.

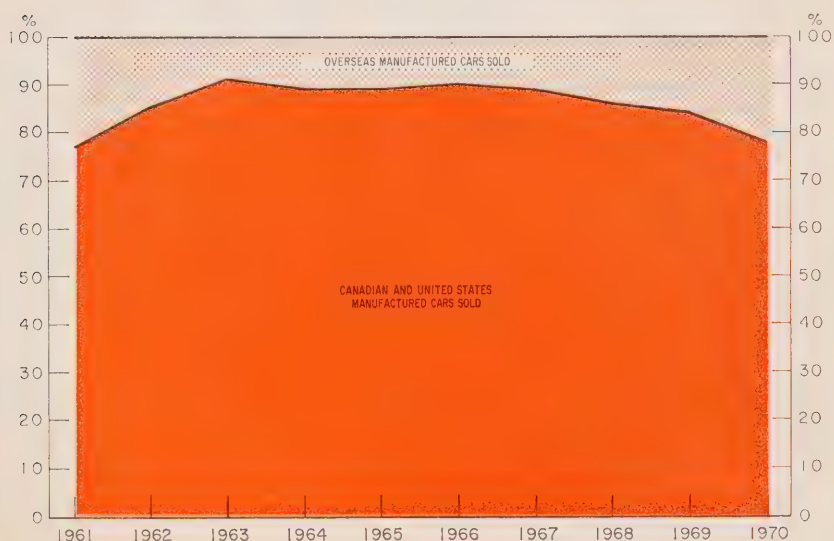
**New Motor Vehicle Sales.**—The largest homogeneous group of commodities sold within the confines of retail outlets is embodied in the classification "new motor vehicles". In the only current\* survey of retail trade carried on at the commodity level (all others are based on "kind of business"), new motor vehicles are taken to include private passenger cars and taxis, trucks, buses and other commercial vehicles sold at retail. As shown in Table 9, sales of new motor vehicles in 1970 decreased to \$2,812,330,000, based on the actual cost to purchasers (prior to 1967, the data were based on 'manufacturers' suggested list prices). The decline in new motor vehicle sales (15.4 p.c. below the 1969 level) is believed

\* Statistics Canada also produces—on an occasional basis (at present, once every five years)—a comprehensive report on all commodities sold in retail outlets. The most recent publication, *Retail Commodity Survey, 1968* (Catalogue No. 63-518), was released in February 1971.

COMPARISON OF CANADIAN PASSENGER CAR UNIT SALES OF OVERSEAS  
MANUFACTURED CARS WITH THOSE MANUFACTURED IN  
CANADA AND THE UNITED STATES, 1961-70



MARKET SHARE OF OVERSEAS MANUFACTURED AND CANADIAN  
AND UNITED STATES MANUFACTURED PASSENGER CARS,  
PERCENTAGES BASED ON UNIT SALES IN CANADA, 1961-70



to have been primarily the result of unsettled economic conditions which prevailed during this period and which heavily influenced the sale of high-priced consumer goods.

### 9.—Retail Sales of New Motor Vehicles, 1961-70

Year	Passenger Cars		Trucks and Buses		Totals	
	No.	\$	No.	\$	No.	\$
1961.....	437,319	1,290,026,000	74,160	261,382,000	511,479	1,551,408,000
1962.....	502,565	1,482,407,000	82,645	300,509,000	585,210	1,782,916,000
1963.....	557,787	1,716,121,000	97,202	345,918,000	654,989	2,062,039,000
1964.....	616,739	1,936,258,000	109,120	401,544,000	725,879	2,337,802,000
1965.....	708,716	2,267,314,000	122,279	472,015,000	830,995	2,739,329,000
1966.....	694,820	2,274,083,000	132,611	550,508,000	827,431	2,824,591,000
1967.....	679,435	2,210,309,000	135,872	588,057,000	815,307	2,798,366,000
1968.....	741,915	2,481,141,000	147,538	634,648,000	889,453	3,115,789,000
1969.....	760,803	2,603,835,000	156,702	719,044,000	917,505	3,322,879,000
1970.....	640,360	2,158,543,000	133,881	653,787,000	774,241	2,812,330,000

In recent years, the sales of overseas-manufactured vehicles—both passenger cars and trucks—have been increasing at a faster rate than those of Canadian and United States manufacture. In addition, the share of the new motor vehicle market held by overseas manufacturers has been rising apace; 1970 was the fourth consecutive year of growth in the market share of new overseas vehicles. Table 10 shows new motor vehicle sales, by type of vehicle and by source of origin, for 1969 and 1970. It will be noted that one out of every five new vehicles sold during 1970 was an overseas-built model, and that nearly one seventh of Canadian sales dollars went toward the purchase of such models.

### 10.—Retail Sales of New Motor Vehicles, by Type and Source, 1969 and 1970

Type of Vehicle and Source	Units			Retail Value		
	1969	1970	Percentage Change 1969-70	1969	1970	Percentage Change 1969-70
	No.	No.		\$'000	\$'000	
<b>Passenger Cars</b> .....	<b>760,803</b>	<b>640,360</b>	<b>-15.8</b>	<b>2,603,835</b>	<b>2,158,543</b>	<b>-17.1</b>
Canadian and U.S. manufacture.....	638,270	497,185	-22.1	2,308,109	1,795,709	-22.2
Overseas manufacture.....	122,533	143,175	+16.8	295,726	362,834	+22.7
<b>Trucks and Buses</b> .....	<b>156,702</b>	<b>133,881</b>	<b>-14.6</b>	<b>719,044</b>	<b>653,787</b>	<b>-9.1</b>
Canadian and U.S. manufacture.....	149,597	124,664	-16.7	699,536	628,532	-10.2
Overseas manufacture.....	7,105	9,217	+29.7	19,508	25,255	+29.5
<b>Totals, All Vehicles</b> .....	<b>917,505</b>	<b>774,241</b>	<b>-15.6</b>	<b>3,322,879</b>	<b>2,812,330</b>	<b>-15.4</b>
Canadian and U.S. manufacture.....	787,867	621,849	-21.1	3,007,645	2,424,241	-19.4
Overseas manufacture.....	129,638	152,392	+17.6	315,234	388,089	+23.1

**Non-store Retailing.**—Consumer goods, in addition to being sold in retail stores, often reach the household user through other more direct channels of distribution—commonly described as “direct selling”. These channels are characterized by the fact that the commodities handled bypass the retail outlet completely in moving from manufacturer to distributor to household consumer. Statistics Canada periodically carries out surveys of two distinct forms of direct selling—merchandise sales of vending machine operators, and of manufacturers and distributors specializing in direct-sales methods.

**Vending Machine Operators.**—This survey is designed to measure the value of sales made through automatic vending machines owned or operated by vending machine firms, including soft drink bottlers engaged in vending activities on a regular year-round basis. In 1970, such sales reached a new high of \$156,822,100, 9.7 p.c. above the 1969 total of \$142,909,600. The 1970 sales were recorded by 768 vending machine operators through 107,652 automatic merchandising machines, including 1,403 microwave and infra-red ovens and 2,498 coin and bill changers.

## 11.—Vending Machine Operators, 1961-70

Year	Firms	Machines <sup>1</sup>	Sales
	No.	No.	\$
1961.....	579	65,028	44,959,700
1962.....	600	73,397	57,799,200
1963.....	673	78,477	67,580,000
1964.....	651	75,392	78,561,800
1965.....	764	85,091	89,815,400
1966.....	769	85,880	107,539,600
1967.....	790	93,441	119,650,900
1968.....	791	98,691	127,058,600
1969.....		104,078	142,909,600
1970.....	768	107,652	156,822,100

<sup>1</sup> From 1966 on, includes microwave and infra-red ovens and coin and bill changers.

Although vending machines can be used to distribute many types of commodities, the largest proportion of sales has been accounted for consistently by three main lines—tobacco products, hot drinks, and cold drinks vended in bottles, cans, cartons and disposable cups. In 1970, sales in these three product areas amounted to \$125,234,900, an increase of 9.8 p.c. over the 1969 total. However, the over-all importance of tobacco products, hot drinks and cold drinks is declining. In 1960, these commodities accounted for 87.4 p.c. of all merchandise sold in vending machines; by 1970, this proportion had fallen to 79.8 p.c. Among commodities sold in vending machines, packaged confectionery showed the largest increase in market share from 1969 to 1970.

## 12.—Value and Percentage Distribution of Sales by Vending Machine Operators, by Product, 1969 and 1970

Product	1969		1970	
	Sales	Percentage of Total	Sales	Percentage of Total
	\$		\$	
Tobacco products.....	68,236,300	47.8	75,177,300	47.9
Ice cream.....	290,100	0.2	325,600	0.2
Milk and milk products.....	3,437,500	2.4	3,966,700	2.5
Cold Drinks—				
Vended in bottles, cans or cartons.....	10,351,400	7.2	11,554,400	7.4
Vended in disposable cups.....	14,323,900	10.0	14,967,200	9.5
Hot drinks (coffee, tea, hot chocolate and cup-vended soup)	21,137,600	14.8	23,536,000	15.0
Bulk (unwrapped) confectionery.....	1,522,400	1.1	1,536,700	1.0
Packaged confectionery.....	5,874,100	4.1	7,301,500	4.7
Pastries.....	7,258,900	5.1	6,637,300	4.2
Fresh foods (sandwiches, salads, casseroles, hot dogs, etc.)	8,472,100	5.9	9,321,700	5.9
Canned hot foods and canned soup.....	1,827,200	1.3	2,159,100	1.4
Other foods (fruit, potato chips, etc.).....	178,100	0.1	338,800	0.2
Other non-food items.....				
<b>Totals, All Products.....</b>	<b>142,909,600</b>	<b>100.0</b>	<b>156,822,100</b>	<b>100.0</b>

*Direct Selling by Manufacturers and Specialist Agencies.*—The first survey of direct selling, covering manufacturers and selected agencies specializing in direct-sales methods, was taken in 1966 and has been continued since on an annual basis. Table 13 shows that, over the five-year period 1966-70, such direct sales increased by more than 16 p.c., rising from \$617,089,000 to \$718,254,000. Among the industries surveyed in 1970, the largest share of sales was accounted for by manufacturers and distributors of dairy products (22.8 p.c.); newspapers and magazines (18.7 p.c.); and cosmetics (10.2 p.c.). Businesses in these three industries were responsible for *more than half* of all direct sales reported. The



greatest growth, occurred primarily in the following areas: direct sales of electrical appliances rose 55.9 p.c.; clothing, 51.5 p.c.; cosmetics, 46.3 p.c.; and kitchenware and utensils, 44.3 p.c.

### 13.—Direct Selling by Manufacturers and Specialist Agencies, 1966-70

Commodities	1966	1967	1968	1969	1970	Percentage Change 1966-70
	\$'000	\$'000	\$'000	\$'000	\$'000	
Meat, fish and poultry.....	5,408	4,925	5,873	6,672	7,127	+13.8
Frozen food plans.....	21,799	23,072	27,754	24,840	24,692	+13.3
Fruits, vegetables, juices and health foods.....	5,766	5,607	4,839	5,289	5,717	- 0.8
Dairy products.....	177,937	178,152	166,468	163,055	163,870	- 7.9
Bakery products.....	67,269	64,159	56,400	46,983	44,000	-34.6
Canvas awnings, tents, etc.....	2,845	3,451	3,185	2,615	2,401	-15.6
Clothing.....	8,767	8,667	13,661	13,628	13,284	+51.5
Fur goods.....	2,455	2,590	2,709	2,167	2,439	- 0.7
Furniture.....	5,286	5,523	4,969	5,764	5,416	+ 2.5
Books.....	45,332	51,164	52,290	58,087	54,643	+20.5
Newspapers and magazines.....	103,743	116,716	125,928	130,064	134,018	+29.2
Kitchenware and utensils.....	16,315	18,431	26,137	26,497	23,541	+44.3
Electrical appliances.....	32,279	34,617	44,626	49,778	50,323	+55.9
Nursery seeds, stock and fertilizer.....	3,609	3,957	4,159	5,016	4,404	+25.5
Pharmaceuticals and medicines.....	5,377	5,219	5,423	6,491	7,155	+33.1
Brushes, brooms, soaps and cleaners.....	17,414	17,428	20,398	20,679	22,270	+27.9
Cosmetics.....	50,102	54,353	64,314	67,337	73,312	+46.3
Phonograph records.....	14,453	18,140	16,852	14,158	16,498	+13.8
Miscellaneous <sup>1</sup> .....	31,033	33,101	51,445	55,406	63,144	+103.6
<b>Totals, All Commodities.....</b>	<b>617,089</b>	<b>649,271</b>	<b>697,430</b>	<b>704,526</b>	<b>718,254</b>	<b>+16.4</b>

<sup>1</sup> Includes leather goods, jewellery and silverware, aluminum products, textiles, boats, other foods and beverages, stamps, coins, personal stationery, etc.

The channels of distribution employed by direct sellers in 1970 were very similar to those utilized in earlier years. As shown in Table 14, door-to-door sales in that year accounted for 72 p.c. of total sales, mail-order requests (excluding the mail-order business of Canadian department stores) amounted to 19 p.c., and sales from manufacturers' premises were 6 p.c.; the remaining 3 p.c. was sold by various other methods of contacting the customer.

### 14.—Methods of Distribution of Direct Sales, 1970

Commodities	By Door-to-Door Canvassing	By Mail or Telephone	From Manufacturers' Premises	Through Other Channels <sup>1</sup>
	p.c.	p.c.	p.c.	p.c.
Meat, fish and poultry.....	2	—	98	2
Frozen food plans.....	1	54	45	—
Fruits, vegetables, juices and health foods.....	98	2	2	—
Dairy products.....	100	—	—	—
Bakery products.....	100	—	—	—
Canvas awnings, tents, etc.....	25	22	53	—
Clothing.....	2	63	17	2
Fur goods.....	—	—	100	—
Furniture.....	—	—	100	—
Books.....	31	69	—	—
Newspapers and magazines.....	80	14	1	5
Kitchenware and utensils.....	100	—	—	—
Electrical appliances.....	71	25	3	1
Nursery seeds, stock and fertilizer.....	2	70	2	—
Pharmaceuticals and medicines.....	91	7	2	—
Brushes, brooms, soaps and cleaners.....	99	2	2	—
Cosmetics.....	97	2	2	2
Phonograph records.....	—	100	—	—
Miscellaneous <sup>2</sup> .....	33	35	23	9
<b>Totals, All Commodities.....</b>	<b>72</b>	<b>19</b>	<b>6</b>	<b>3</b>

<sup>1</sup> Includes roadside stands, market stalls, kiosks, off-premises shows, exhibitions, house parties and other display and demonstration avenues.

<sup>2</sup> Confidential.

<sup>3</sup> See footnote to Table 13.

**Campus Book Stores.**—As a supplement to its current retail trade series, Statistics Canada initiated, in 1969, a survey of book stores located on the campuses of universities and other post-secondary educational institutions. The pilot study covered the academic years 1966-67 and 1967-68, and subsequent surveys have produced a full range of data relating to the 1968-69 and 1969-70 years. Table 15 provides summary data on the sales of campus book stores for the four years.

**15.—Retail Sales in Campus Book Stores, Academic Years Ended 1967-70**

Province and Items Sold	Academic Years Ended—				Percentage Change 1969-70
	1967	1968	1969 <sup>1</sup>	1970	
	\$'000	\$'000	\$'000 <sup>2</sup>	\$'000	
<b>Province</b>					
Atlantic Region.....	1,676	2,022	2,435	2,826	+16.1
Nova Scotia.....	706	840	1,064	1,283	+20.6
New Brunswick.....	636	744	935	975	+ 4.3
Quebec.....	3,640	4,564	4,334	4,975	+14.8
Ontario.....	7,318	8,927	12,259	14,505	+18.4
Manitoba.....	1,198	1,346	1,556	1,822	+17.1
Saskatchewan.....	1,199	1,340	1,505	1,727	+14.8
Alberta.....	1,753	2,350	3,197	3,765	+17.8
British Columbia.....	2,813	3,158	3,573	3,782	+ 5.8
<b>Total.....</b>	<b>19,596</b>	<b>23,707</b>	<b>28,859</b>	<b>33,402</b>	<b>+15.7</b>
<b>Items Sold</b>					
Text books <sup>1</sup> .....	14,638	..	19,769	22,179	+12.2
Trade books <sup>2</sup> .....			3,290	4,543	+38.1
Stationery and supplies.....	3,194	..	4,011	4,476	+11.6
Miscellaneous <sup>3</sup> .....	1,764	..	1,789	2,204	+23.2

<sup>1</sup> Includes all professional and educational books, includes newspapers, magazines, periodicals and sundries.

<sup>2</sup> Includes both hard covers and paperbacks.

<sup>3</sup> In-

**Shopping Centres.**—One of the most interesting aspects of Canadian marketing during the past decade has been the continuing growth of shopping centres as a vital tool in the movement of goods and services from supplier to end-user. As shown in Table 16, sales in retail stores located in shopping centres increased by 84.1 p.c. between 1966 and 1970—nearly four times the rate of growth of total retail sales. The service trades operating within a shopping centre environment have also prospered, as indicated by the 45.7-p.c. increase in their total receipts from 1967 to 1970 (1966 data are not available).

The major retail kinds of business in shopping centres during 1966-70 continued to be grocery and combination stores, which accounted for 33.9 p.c. of retail sales, and department stores which accounted for 31.4 p.c. of the total. However, at their present rate of increase, department stores (+21.7 p.c. cumulative) will have overtaken grocery and combination stores (+13.9 p.c. cumulative) within the following two years, i.e., by the end of 1972. Restaurants continued to be the mainstay of service trades in shopping centres, accounting for 46.1 p.c. of total service receipts in 1970 compared with 45.9 p.c. in 1967. Dry cleaning and laundry locations, together with movie theatres and beauty salons, accounted for another 32.2 p.c. of 1970 service receipts in shopping centres.



Shoppers at Fairview Mall, North York, Ont., move easily with their carts or baby carriages from the lower to the upper level. North York, spreading north of the city of Toronto, is one of the fastest growing municipalities in Canada. It covers 70 sq. miles and is home to more than half a million people, whose needs for goods and services have resulted in a tremendous expansion of commerce and industry in the area.

16.—Sales in Shopping Centres, by Type of Store and Service, 1966-70

Type of Store	1966	1967	1968	1969	1970
	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Retail—</b>					
Grocery and combination stores.....	778,330	864,129	954,107	1,067,569	1,309,431
All other food stores.....	32,943	44,092	44,723	50,451	53,392
Department stores.....	554,302	727,461	866,575	1,055,657	1,213,291
Variety stores.....	111,167	127,787	110,475	111,890	112,911
Service stations and garages.....	19,853	27,723	32,746	36,620	40,175
Men's clothing stores.....	43,037	48,716	56,283	65,934	78,014
Women's clothing stores.....	70,938	98,504	113,141	132,362	160,260
Family clothing stores.....	38,267	32,327	37,354	41,841	47,857
Shoe stores.....	45,729	60,946	60,379	67,960	76,376
Hardware stores.....	40,283	47,129	51,290	52,666	55,586
Furniture, TV, radio and appliance stores.....	29,007	36,206	42,696	46,763	53,569
Drug stores.....	87,557	107,105	116,962	131,965	152,882
Jewellery stores.....	17,601	22,845	26,622	30,400	33,444
All other stores.....	231,014	307,208	359,897	428,526	479,116
<b>Totals, All Stores.....</b>	<b>2,100,028</b>	<b>2,552,178</b>	<b>2,873,248</b>	<b>3,320,604</b>	<b>3,866,305</b>

## 16.—Sales in Shopping Centres, by Type of Store and Service, 1966-70—concluded

Service	1966	1967	1968	1969	1970
	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Service—</b>					
Regular theatres.....	..	3,495	5,007	6,166	10,199
Billiard parlours.....	..	1,156	972	1,083	1,091
Bowling alleys.....	..	3,227	3,654	4,116	5,810
Other amusement and recreation services.....	..	1,049	1,502	1,599	1,539
Barber shops.....	..	7,286	7,298	8,486	8,743
Beauty salons.....	..	15,210	15,981	17,699	18,963
Dry cleaning plants and laundries.....	..	18,858	20,490	21,870	23,325
Shoe repair shops.....	..	1,614	1,905	2,001	2,085
Other personal services.....	..	1,196	2,651	3,189	3,522
Business services (advertising, accounting, etc.).....	..	1,924	2,258	..	..
Repair services.....	..	295	152	..	..
Other miscellaneous services.....	..	1,615	1,878	2,042	1,564
Restaurants.....	..	51,353	55,573	66,948	75,063
Take-out food shops.....	..	1,445	3,274	4,851	5,600
Other eating and drinking places.....	..	2,101	3,668	4,267	5,422
<b>Totals, All Trades.....</b>	<b>..</b>	<b>111,824</b>	<b>126,264</b>	<b>144,316</b>	<b>162,927</b>

Table 17 provides a breakdown of shopping centre stores and sales during 1970, by size of shopping centre and type of outlet. Although far more stores (both retail and service) are located in the small "neighbourhood" shopping centre than in any other, in terms of sales the large "regional" type of shopping centre has become the dominant force in this sector of the economy. Shopping centres with more than 30 stores in 1970 accounted for 40.4 p.c. of retail sales and 36.3 p.c. of service receipts among the three types of shopping centres. Department stores, in particular, are heavily concentrated in these larger centres, as shown by the fact that nearly 58 p.c. of department store sales take place in shopping centres.

## 17.—Number, Sales and Receipts of Retail Stores (Chain Stores, Department Stores and Independent Stores) and Service Outlets, by Size of Shopping Centre, 1970

Type of Outlet	Shopping Centres with—			Total
	5-15 Stores	16-30 Stores	31+ Stores	
<b>Outlets—</b>				
Retail stores..... No.	2,950	2,181	2,754	7,885
Chain store outlets..... "	863	850	1,253	2,971
Department store outlets..... "	44	44	76	164
Independent store sales..... "	2,088	1,287	1,485	4,760
Service outlets..... "	1,497	621	523	2,641
<b>Totals, Outlets..... No.</b>	<b>4,447</b>	<b>2,802</b>	<b>3,277</b>	<b>10,526</b>
<b>Dollar Sales and Receipts—</b>				
Retail sales..... \$'000	1,316	989	1,561	3,866
Chain store sales..... "	753	533	645	1,931
Department store sales..... "	290	292	701	1,283
Independent store sales..... "	343	164	215	721
Service receipts..... "	64	40	59	163
<b>Totals, Sales and Receipts..... \$'000</b>	<b>1,380</b>	<b>1,029</b>	<b>1,620</b>	<b>4,029</b>



## Wholesale Trade

The sales of wholesale merchants,\* as measured by a monthly reporting panel of such establishments, have increased consistently over the past several years. In 1970, they reached a new high of \$23,048,000,000, some 2.5 p.c. above the \$22,475,000,000 recorded during the previous year. Consumer goods wholesalers experienced a 7.2-p.c. increase in sales, compared with a 2.1-p.c. decline for wholesalers of industrial goods. The best results were recorded by wholesalers of grain, drugs and drug sundries, and scrap metal; the poorest by wholesalers of farm machinery, coal and coke, and footwear.

Table 18 shows the annual sales of wholesale merchants in 24 kind-of-business groupings and two residual categories during the period 1966-70. These data reflect changes in the wholesale trade series resulting from their adjustment to the 1966 Census bench-mark. Further information is given in *Wholesale Trade, 1966 Establishments* (Catalogue No. 97-627) and *Wholesale Trade, 1961-1970* (Catalogue No. 63-521).

18.—Sales of Wholesale Merchants, by Kind of Business, 1966-70

Kind of Business	1966	1967	1968	1969	1970	Percentage Change 1969-70
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000	
<b>Consumer Goods Trades.....</b>	<b>8,683</b>	<b>9,425</b>	<b>10,234</b>	<b>11,139</b>	<b>11,946</b>	<b>+ 7.2</b>
Automotive parts and accessories.....	829	917	1,047	1,190	1,355	+13.9
Motor vehicles.....	329	350	453	491	555	+13.0
Drugs and drug sundries.....	396	437	473	522	612	+17.2
Clothing and furnishings.....	219	231	249	284	305	+ 7.4
Footwear.....	70	73	83	96	81	-15.6
Other textiles and clothing accessories.....	416	430	440	491	518	+ 5.5
Household electrical appliances.....	379	414	460	532	532	—
Tobacco, confectionery and soft drinks.....	668	734	791	863	941	+ 9.0
Fresh fruits and vegetables.....	418	439	496	517	519	+ 0.4
Meat and dairy products.....	589	643	585	717	781	+ 8.9
Floor coverings.....	163	176	218	244	237	- 2.9
Groceries and food specialties.....	2,888	3,123	3,309	3,526	3,717	+ 5.4
Hardware.....	526	543	553	577	617	+ 6.9
Other consumer goods.....	793	915	1,077	1,089	1,176	+ 8.0
<b>Industrial Goods Trades.....</b>	<b>10,239</b>	<b>9,997</b>	<b>10,363</b>	<b>11,336</b>	<b>11,102</b>	<b>- 2.1</b>
Coal and coke.....	107	105	95	92	69	-25.0
Grain.....	1,702	1,193	1,064	709	893	+26.0
Electrical wiring supplies, construction materials, apparatus and equipment.....	339	366	392	397	402	+ 1.3
Other construction materials and supplies, including lumber.....	2,258	2,304	2,572	2,867	2,597	- 9.4
Farm machinery.....	921	952	848	901	633	-29.7
Industrial and transportation equipment and supplies.....	1,775	1,787	1,788	2,141	2,022	- 5.6
Commercial, institutional and service equipment and supplies.....	413	495	545	628	565	-10.0
Newsprint, paper and paper products.....	366	366	394	425	409	- 3.8
Scientific and professional equipment.....	201	232	272	303	324	+ 6.9
Iron and steel.....	757	763	810	1,125	1,259	+11.9
Junk and scrap.....	369	334	380	448	522	+16.5
Other industrial goods.....	1,031	1,100	1,203	1,300	1,407	+ 8.2
<b>Totals, All Trades.....</b>	<b>18,922</b>	<b>19,422</b>	<b>20,597</b>	<b>22,475</b>	<b>23,048</b>	<b>+ 2.5</b>

In addition to the monthly survey of wholesale merchants, two annual surveys of wholesale trade are undertaken by Statistics Canada at the commodity level—farm implements and equipment, and construction machinery and equipment. (It should be noted

\* Excludes manufacturers' sales branches, agents and brokers, primary product dealers and petroleum bulk plants and distributors. However, these types of wholesalers are covered in the wholesale trade census.

that estimates of farm implement and equipment sales are also published monthly, in aggregate form, based on the data reported by a panel of major-line companies.)

*Farm Implements and Equipment.*—Sales of farm implements and equipment (valued at wholesale prices) declined in 1970 for the third consecutive year. The sales total of \$278,981,000 was 19.0 p.c. lower than the comparable 1969 figure of \$344,309,000. Although the largest declines were experienced in British Columbia, every province and every commodity group suffered to some extent from the general “malaise” which affected sales of farm implements and equipment during 1970. Table 19 gives data on sales for 1966-70; sales of repair parts, not shown, were \$65,032,000 in 1970, 1.1 p.c. lower than the record \$65,751,000 reached in the previous year.

### 19.—Sales of Farm Implements and Equipment, by Province and by Major Group, 1966-70

NOTE.—Data are based on a commodity survey and therefore exclude sales of repair parts and other products and receipts from secondary activities, including repairs, carried out by respondents. The figures are not comparable with those given in Table 18.

Province and Major Group	1966	1967	1968	1969	1970	Percentage Change 1969-70
	\$'000	\$'000	\$'000	\$'000	\$'000	
<b>Province</b>						
Atlantic Provinces.....	11,259	13,101	11,727	11,808	11,051	— 6.4
Quebec.....	38,874	49,495	49,428	53,449	46,591	—12.8
Ontario.....	87,085	96,865	89,124	92,832	83,183	—10.4
Manitoba.....	55,774	50,923	44,451	34,719	28,436	—18.1
Saskatchewan.....	126,201	116,453	92,103	68,402	51,566	—24.6
Alberta.....	89,403	95,777	80,571	71,724	50,354	—29.8
British Columbia.....	8,318	9,685	10,727	11,375	7,799	—31.4
<b>Totals.....</b>	<b>416,914</b>	<b>432,299</b>	<b>378,131</b>	<b>344,309</b>	<b>278,981</b>	<b>—19.0</b>
<b>Major Group</b>						
Tractors and engines.....	149,467	153,064	128,829	118,631	102,597	—13.5
Ploughs.....	19,659	20,864	15,967	10,903	7,480	—31.4
Tilling, cultivating and weeding machinery....	28,807	33,763	28,687	22,463	15,380	—31.5
Planting, seeding and fertilizing machinery....	20,117	23,607	19,134	16,440	12,948	—21.2
Haying machinery.....	29,853	27,952	26,397	23,231	21,272	— 8.4
Harvesting machinery.....	110,032	107,213	99,042	69,156	52,058	—24.7
Machines for preparing crops for market or for use.....	15,378	14,900	14,895	18,849	15,518	—17.7
Farm wagons, boxes and sleighs.....	5,740	6,795	7,258	8,784	8,274	— 5.8
Barn equipment.....	10,078	12,775	12,702	19,540	15,910	—18.6
Farm dairy machinery and equipment.....	6,816	9,006	8,441	10,598	6,470	—39.0
Spraying and dusting equipment.....	3,406	4,017	3,716	4,397	2,399	—45.4
Pumps and irrigation equipment and miscellaneous farm equipment.....	17,561	18,343	13,063	21,317	18,673	—12.4

*Construction Machinery and Equipment.*—This survey, which was first undertaken for the year 1967 and since repeated for 1969 and 1970, was designed to measure the sales of Canadian distributors and direct sales of manufacturers to end-users in the construction machinery and equipment field at actual final selling price and to assess the revenue derived from rentals. As shown in Table 20, total sales and rental revenue amounted to \$712,935,916, almost 80 p.c. of which was realized through the sale of new machinery and equipment. As in 1969, the survey produced additional information on the disposal of new construction machinery and equipment to end-users through such arrangements as first rental, demonstration or loan; the value of such machinery and equipment reached \$63,245,403 in 1970.

### 20.—Sales and Rentals of Construction Machinery and Equipment, by Major Commodity Group, 1970

Item	New Machinery and Equipment				Used Machinery and Equipment	Rental Revenue
	Sold Outright to End-Users		Supplied by Other Arrangement <sup>1</sup>			
	Units	Value	Units	Value		
	No.	\$	No.	\$	\$	\$
Tractors, crawler-type.....	1,304	57,975,654	317	17,384,451	25,266,716	11,282,766
Tractors, wheel-type.....	613	11,276,784	38	942,084	2,494,630	1,257,147
Front-end loaders, wheel-type.....	1,188	44,975,266	215	11,131,974	10,578,261	7,662,207
Tractor and front-end loader attachments.....	675	2,246,889	5	9,336	364,580	2
Scrapers, dig-carry-haul.....	104	10,654,454	37	3,589,306	2,598,477	2,049,882
Dump wagons, semi-trailers, heavy duty, off-highway haulers.....	192	25,189,113	24	2,444,691	921,023	1,382,766
Excavator/cranes, crawler-mounted....	213	21,074,465	58	3,680,506	4,254,198	2,836,339
Excavator/cranes, tire-mounted.....	187	13,628,954	114	8,080,210	5,098,374	2,308,950
Excavator/crane attachments.....	144	1,521,125	2	2	56,165	2
Tower and climbing cranes.....	16	996,949	2	2	558,412	1,462,399
Trenchers and ditchers.....	83	1,012,774	28	289,007	489,373	176,264
Graders, motor.....	432	15,556,634	25	992,675	2,511,635	1,550,934
Logging skidders.....	946	17,469,624	191	3,154,095	5,658,958	1,413,972
Rollers, road, self-propelled.....	171	1,275,901	39	347,418	412,537	420,776
Compactors, vibratory.....	91	1,116,893	52	948,613	850,086	1,257,421
Rollers and compactors, hand-guided, motorized, all types.....	562	726,517	161	332,004	264,376	874,399
Air compressors, portable.....	530	3,876,054	163	2,385,704	2,601,290	4,313,320
Rock drills.....	508	4,600,650	107	1,396,118	1,132,668	1,681,873
Pumps, contractors.....	3,056	2,106,210	453	484,803	438,921	1,453,680
Contractors' tools.....	1,414	765,709	227	136,226	142,281	615,986
Concrete machinery.....	747	5,690,408	29	252,451	416,159	359,407
Asphalt equipment.....	100	4,890,653	2	2	448,351	155,657
Aggregate processing equipment.....	...	13,214,025	...	436,362	3,166,394	811,447
All other construction machinery and equipment.....	...	71,028,907	...	4,433,661	7,933,903	13,936,364
All repair and consumable parts.....	...	237,150,342	...	...	4,890,923	...
Totals, All Items.....	...	570,020,954	...	63,245,403	83,548,691	59,366,271

<sup>1</sup> Includes: first rental, first demonstration and first loans.<sup>2</sup> Confidential.

### Service Trades

**Hotels.**—In addition to its annual hotel survey (Catalogue No. 63-204), Statistics Canada also reports semi-annually on the trend of hotel receipts in Canada, based on results obtained from a panel of hotels having 50 or more rooms. Table 21 shows that the receipts of such hotels increased by more than 28 p.c. during the 1966-70 period. The best results were experienced in Alberta and British Columbia and the poorest in Newfoundland and Prince Edward Island (combined) and in Saskatchewan. On a year-to-year basis, the greatest rise took place between 1966 and 1967, as Canada's Centennial-year celebrations produced a significant volume of hotel business. The let-down from 1967 to 1968 was felt most acutely in Quebec, which had shown the greatest increase in the previous year. From 1968 to 1969, hotel receipts in most provinces (except New Brunswick and Saskatchewan) increased at a faster rate than in the previous year. The results for 1969-70 showed less consistency than in earlier years, although Alberta, for the third time in succession, registered a larger increase than any other province. In contrast, hotel receipts in Saskatchewan have been trending downward, with successively smaller rates of growth each year from 1966 onward.

**21.—Percentage Change in Hotel Receipts, by Province, 1966-70**

Province	1966-67	1967-68	1968-69	1969-70	1968-70
Newfoundland.....	- 1.1	+ 1.9	+ 2.4	+ 0.8	+ 4.0
Prince Edward Island.....					
Nova Scotia.....					
New Brunswick.....					
Quebec.....					
Ontario.....	+13.3	+ 2.8	+ 8.5	+ 3.5	+30.8
Manitoba.....	+11.0	+ 7.1	+ 8.0	+ 6.3	+36.5
Saskatchewan.....	+ 5.5	+ 3.2	+ 1.6	+ 0.7	+11.4
Alberta.....	+ 4.5	+12.7	+14.9	+10.9	+50.1
British Columbia <sup>1</sup> .....	+ 8.4	+ 9.8	+ 9.8	+ 5.8	+38.3
<b>Canada.....</b>	<b>+12.5</b>	<b>- 1.4</b>	<b>+ 9.9</b>	<b>+ 5.2</b>	<b>+28.2</b>

<sup>1</sup> Includes the Yukon and Northwest Territories.

**Restaurants.**—The same forces that shaped hotel business during recent years were also evident in another large area of the service trades—restaurants and other eating places. It was these forces that produced the largest year-over-year increase in Quebec between 1966 and 1967, and that resulted in the largest decline in the same province between 1967 and 1968. As indicated in Table 22, restaurant receipts rose by more than \$140,000,000 (13.0 p.c.) over the 1966-70 period. The largest percentage growths took place in Alberta (32.2 p.c.), Nova Scotia (18.3 p.c.) and New Brunswick (17.4 p.c.). At the same time, three provinces registered absolute declines, led by Saskatchewan with a decrease of 16.3 p.c.

**22.—Restaurant Receipts, by Province, 1966-70**

Province	1966	1967	1968	1969 <sup>c</sup>	1970	Percentage Change 1966-70
	\$'000	\$'000	\$'000	\$'000	\$'000	
Newfoundland.....	11,704	11,691	10,541	10,333	10,813	- 7.6
Prince Edward Island.....	3,225	3,223	3,385	3,211	3,153	- 2.2
Nova Scotia.....	25,512	27,381	28,337	29,093	30,183	+18.3
New Brunswick.....	20,765	21,543	22,643	24,149	24,380	+17.4
Quebec.....	364,555	403,494	395,228	405,358	411,597	+12.9
Ontario.....	380,284	393,651	405,880	409,306	423,176	+11.3
Manitoba.....	49,676	51,453	53,582	56,491	57,173	+15.1
Saskatchewan.....	42,219	41,904	42,009	38,428	35,320	-16.3
Alberta.....	77,850	85,039	92,893	100,154	102,901	+32.2
British Columbia <sup>1</sup> .....	102,562	99,594	111,613	121,926	120,084	+17.1
<b>Canada.....</b>	<b>1,078,352</b>	<b>1,138,973</b>	<b>1,166,111</b>	<b>1,198,449</b>	<b>1,218,780</b>	<b>+13.0</b>

<sup>1</sup> Includes the Yukon and Northwest Territories.

**Motion Picture Theatres.**—In 1969 (latest data available at time of writing), the receipts of motion picture theatres, both regular and drive-in, reached their highest level ever. The total receipts of \$118,020,089 were 3.8 p.c. higher than in 1968 and the amount of amusement taxes collected rose to \$8,518,554, up 3.9 p.c. over the previous year. The increase in revenues was not evenly split; drive-in theatre receipts grew at a somewhat faster rate (+6.8 p.c.) than those of regular motion picture theatres (+3.3 p.c.). In contrast to the revenue and tax increases, the number of admissions for all types of theatres declined in 1969 for the fifth successive year, dropping 7.2 p.c. to 90,226,070. Unlike previous years, however, both regular and drive-in theatres lost customers during 1969—more than 6,000,000 in regular theatres alone and nearly 7,000,000 in all.



## 23.—Summary Statistics of Motion Picture Theatre Operations, 1968 and 1969

Item	1968			1969		
	Regular	Drive-in	Total	Regular	Drive-in	Total
Establishments..... No.	1,148	261	1,409	1,157	271	1,428
Receipts from admissions... \$	99,041,543	14,655,709	113,697,252	102,362,509	15,657,580	118,020,089
Amusement taxes..... \$	7,267,592	932,038	8,199,630	7,485,275	1,033,279	8,518,554
Paid admissions..... No.	84,936,845	12,251,940	97,188,785	78,917,657	11,308,413	90,226,070
Employees—						
Male..... No.	5,923	1,529	7,452	5,949	1,543	7,492
Female..... "	5,041	1,347	6,388	5,040	1,367	6,407
Salaries and wages..... \$	21,355,685	3,691,379	25,047,064	22,918,423	3,865,979	26,784,402

**Film Exchanges.**—During 1969 (latest data available at time of writing), films were distributed by 52 companies through 117 offices located across Canada. These exchanges had total receipts of \$62,809,607 compared with \$64,653,218 in 1968, a decrease of 2.9 p.c., and paid \$5,254,423 in salaries and wages to 846 employees. (The activities of the National Film Board of Canada are not included here; they are covered in the Board's Annual Report, available from Information Canada, Ottawa.)

Receipts from the rental of films declined by \$2,398,273 during 1969, 3.7 p.c. below the previous year's high of \$64,186,740. Revenue derived from rentals for theatrical use amounted to \$41,014,356, for television use \$18,942,755 and for other (non-theatrical) use \$1,831,356. In addition, \$24,370 was derived from the sale of advertising and \$996,770 from other sources. New films released for theatrical bookings numbered 860, of which 669 were feature films, 97 cartoons, 62 newsreels and 32 other short subjects. Of the 669 feature films, 253 originated in the United States, 165 in Britain, 98 in Italy, 34 in France, 10 in Canada and 109 in other countries.

## 24.—Summary Statistics of Film Exchanges, 1966-69

Item	1966	1967	1968	1969
Companies..... No.	62	57	56	52
Exchange offices..... "	126	116	120	117
Average Employees—				
Male..... No.	414	376	351	393
Female..... "	399	387	410	453
Salaries and Wages—				
Male..... \$	3,049,039	3,196,152	3,149,205	3,507,470
Female..... \$	1,376,208	1,471,448	1,584,594	1,746,953
Receipts—				
Film rentals..... \$	53,039,160	56,099,098	64,186,740	61,788,467
Sale of advertising..... \$	40,258	34,494	25,893	24,370
Other sources..... \$	309,745	417,647	440,585	996,770

**Motion Picture Production.**—In 1970, there were 112 private (non-government) firms engaged principally in the production and printing of motion picture films and filmstrips for industry, government, education and entertainment purposes. These firms employed 1,345 persons, paid \$8,696,861 in salaries and wages, and had a gross revenue of \$34,061,638, an increase of 26.8 p.c. over 1969. Excluded from these data are television stations and three private firms engaged only partially in motion picture production; the latter produced 21 films, including eight television commercials, 12 non-theatrical motion pictures and one sound filmstrip.

## 25.—Summary Statistics of Motion Picture Production by Private Firms, 1966-70

Item	1966	1967	1968	1969	1970
Firms.....	No. 82	93	95	89	112
Employees <sup>1</sup> .....	944	1,161	1,186	1,127	1,345
Salaries and wages <sup>1</sup> .....	\$ 4,852,789	6,668,977	7,415,928	7,680,062	8,696,861
Gross revenue.....	\$ 17,943,784	22,734,605	26,901,602	26,864,914	34,061,638
Production.....	\$ 11,458,394	14,475,088	16,060,025	15,248,054	20,777,217
Printing and laboratory.....	\$ 5,110,540	7,546,162	9,917,026	10,190,191	12,161,242
Other.....	\$ 1,374,850	713,355	924,551	1,426,669	1,123,179

<sup>1</sup> Excludes proprietors of unincorporated businesses.

Table 26 shows the motion picture production records of both private industry and government agencies during 1969 and 1970. Of the 4,968 films produced in Canada in 1970, 4,893 were in the English or French languages. During that year, despite the entry of 23 new firms and greatly increased revenues, Canadian motion picture production fell significantly below the 1969 level of activity; production by private firms declined 7.5 p.c. and by government agencies, 35.8 p.c. In total, private and government film producers printed 1,157,000 ft. of 8mm film, 32,013,895 ft. of 16mm film and 3,268,769 ft. of 35mm film in black and white; and 2,387,800 ft. of 8mm film, 60,004,604 ft. of 16mm film and 14,473,463 ft. of 35mm film in colour. Included in these figures were 26 sound motion pictures of five minutes or longer duration made for other than Canadian sponsors.

## 26.—Canadian Motion Picture Production, 1969 and 1970

Year and Type of Production	Private Industry				Government	Private and Government
	Quebec	Ontario	Other Provinces	Total		
	No.	No.	No.	No.	No.	No.
<b>1969</b>						
<b>Films in English or French.....</b>	<b>1,307</b>	<b>3,330</b>	<b>328</b>	<b>4,965</b>	<b>464</b>	<b>5,429</b>
Theatrical feature films.....	11	—	—	11	8	19
Theatrical shorts.....	8	5	—	13	38	51
Television entertainment.....	376	23	5	404	—	404
Television information or documentary.....	102	87	28	217	27	244
Non-theatrical (also non-TV) motion pictures..	28	357	20	405	127	532
Silent motion pictures.....	9	28	46	83	109	192
Television commercials.....	553	2,519	168	3,240	49	3,289
Theatre commercials.....	10	1	—	11	5	16
Other (newsreels, news clips, trailers, titles, etc.).....	147	283	56	486	75	561
Silent filmstrips.....	15	10	1	26	24	50
Sound filmstrips.....	48	17	4	69	2	71
<b>Films in Other than English or French.....</b>	<b>1</b>	<b>14</b>	<b>—</b>	<b>15</b>	<b>71</b>	<b>86</b>
<b>1970</b>						
<b>Films in English or French.....</b>	<b>1,407</b>	<b>2,695</b>	<b>493</b>	<b>4,595</b>	<b>298</b>	<b>4,893</b>
Theatrical feature films.....	11	4	—	15	10	25
Theatrical shorts.....	11	6	—	17	43	60
Television entertainment.....	307	44	26	377	—	377
Television information or documentary.....	99	86	20	205	2	207
Non-theatrical (also non-TV) motion pictures..	96	92	85	273	132	405
Silent motion pictures.....	17	137	46	200	24	224
Television commercials.....	578	2,047	190	2,815	7	2,822
Theatre commercials.....	2	8	—	10	6	16
Other (newsreels, news clips, trailers, titles, etc.).....	240	204	125	569	33	602
Silent filmstrips.....	43	10	—	53	38	91
Sound filmstrips.....	3	57	1	61	3	64
<b>Films in Other than English or French.....</b>	<b>—</b>	<b>3</b>	<b>5</b>	<b>8</b>	<b>67</b>	<b>75</b>

Video-tape firms were included for the first time in the 1970 survey of motion picture production. There were seven firms engaged principally in the production and printing of video tapes, with revenues for the year of \$3,406,158. These firms produced 1,853 tapes, of which 1,481 (79.9 p.c.) were television commercials.

### 27.—Summary Statistics of Video-Tape Production, 1970

Item	1970	Item	1970
Firms.....	No. 7	Productions.....	No. 1,853
Employees <sup>1</sup> .....	" 91	Television entertainment.....	" 316
Salaries and wages <sup>1</sup> .....	\$ 652,357	Television information.....	" 40
Gross revenue.....	\$ 3,406,158	Television commercials.....	" 1,481
Production.....	\$ 2,699,789	Other.....	" 17
Printing and laboratory.....	\$ 114,695		
Other.....	\$ 691,774		

<sup>1</sup> Excludes proprietors of unincorporated businesses.

**Power Laundries and Dry Cleaning and Dyeing Plants.**—In 1969 (latest data available at time of writing), the combined receipts of laundries and dry cleaning and dyeing plants increased by 2.0 p.c. over the previous year's level, reaching a new high of \$275,979,042. Power laundries reported revenues of \$111,309,589, 2.4 p.c. higher than in 1968, and dry cleaning and dyeing plants reported \$164,669,453, up 1.7 p.c. Salaries and wages paid by these firms reached a record \$127,772,882, an increase of 2.5 p.c. over the previous year, and the cost of materials and supplies used in their operations amounted to \$26,923,886, 2.2 p.c. more than in 1968. The upward trends reflected in these statistics provide further evidence of the increasingly important role that such "personal service" trades have assumed in the economic life of the nation.

### 28.—Summary Statistics of Power Laundries and Dry Cleaning and Dyeing Plants, by Source of Receipts and by Province, 1967-69

Item	Power Laundries			Dry Cleaning and Dyeing Plants		
	1967	1968	1969 <sup>1</sup>	1967	1968	1969 <sup>1</sup>
Plants.....	No. 362	378	..	2,150	2,176	..
Employees.....	No. 13,961	13,734	..	21,204	20,754	..
Male.....	" 4,737	4,663	..	7,595	7,245	..
Female.....	" 9,224	9,071	..	13,609	13,509	..
Salaries and wages.....	\$ 49,091,199	50,311,746	53,737,369	72,678,488	74,293,945	74,035,513
Cost of materials and supplies..	\$ 8,652,528	8,660,336	9,033,499	17,307,595	17,667,878	17,890,387
<b>Receipts—</b>						
Laundry.....	\$ 39,140,995	39,312,958	37,733,951 <sup>2</sup>	27,456,379	26,255,430	24,371,079 <sup>2</sup>
Cleaning.....	\$ 14,213,623	13,139,394	13,691,079 <sup>2</sup>	120,916,131	124,120,201	130,253,537 <sup>2</sup>
Rental services.....	\$ 46,930,357	50,621,560	53,873,841 <sup>2</sup>	6,626,708	1,356,633	1,811,364 <sup>2</sup>
All others.....	\$ 4,971,214	5,640,825	6,010,718 <sup>2</sup>	10,729,009	10,161,559	8,233,473 <sup>2</sup>
<b>Total Receipts.....</b>	<b>\$ 105,256,189</b>	<b>108,714,737</b>	<b>111,309,589<sup>2</sup></b>	<b>159,728,227</b>	<b>161,913,823</b>	<b>164,669,453<sup>2</sup></b>
<b>Province—</b>						
Newfoundland.....	\$ } 698,354	726,255	..	{ 1,652,341	1,778,744	..
Prince Edward Island.....	\$ } ..	..	..	{ 514,517	543,917	..
Nova Scotia.....	\$ 1,151,189	1,420,129	..	4,766,821	5,192,159	..
New Brunswick.....	\$ 2,028,063	1,887,854	..	2,683,145	3,071,420	..
Quebec.....	\$ 28,954,641	28,419,641	..	39,358,240	38,709,878	..
Ontario.....	\$ 42,033,247	44,784,938	..	69,865,769	70,554,107	..
Manitoba.....	\$ 4,000,510	3,528,792	..	7,697,058	7,789,607	..
Saskatchewan.....	\$ 1,697,308	1,939,956	..	5,333,895	5,507,184	..
Alberta.....	\$ 8,053,486	8,827,685	..	12,803,680	13,293,346	..
British Columbia <sup>3</sup> .....	\$ 16,639,391	17,179,487	..	15,062,761	15,473,461	..

<sup>1</sup> The 1969 survey of power laundries and dry cleaning and dyeing plants utilized a *sampling* approach; as a result, some of the information presented in earlier years was not available for 1969. <sup>2</sup> Based on a percentage distribution of total receipts. <sup>3</sup> Includes the Yukon and Northwest Territories.

**Advertising Agencies.**—Billings of advertising agencies rose dramatically during 1969 (latest data available at time of writing) to a new high of \$456,142,810, an increase of 7.0 p.c. over 1968. Advertising billings alone increased to \$450,332,349, up 6.8 p.c., while billings for market surveys, research and other fees jumped more than 34.0 p.c. As a result, gross revenues during 1969 rose by nearly 9.0 p.c. to \$78,874,175 and net revenues, at \$9,388,551, were almost double those recorded in 1968.

### 29.—Summary Statistics of Advertising Agencies, 1966-69

Item	1966	1967	1968	1969
Firms..... No.	165	176	171	163
Employees..... "	4,973	5,138	4,919	4,876
Male..... "	2,574	2,618	2,511	2,502
Female..... "	2,399	2,520	2,408	2,374
Salaries and wages..... \$	40,771,172	44,034,036	44,651,258	46,623,740
Billings..... \$	402,175,860	429,595,237	426,144,921	456,142,810
Advertising billings..... \$	392,542,021	420,092,360	416,627,895	450,332,349
Production work..... \$	4,145,388	4,753,410	6,184,912	5,810,461
Market surveys, etc..... \$	6,488,460	4,749,467	4,332,114	78,874,175
Gross revenue..... \$	66,915,185	72,334,604	72,476,274	73,225,447 <sup>1</sup>
Advertising billings..... \$	67,082,209	63,118,232	62,648,503	5,648,728
All other sources..... \$	9,832,976	9,716,322	9,827,771	9,388,551
Net revenue..... \$	6,578,493	6,019,603	4,744,010	

<sup>1</sup> Gross revenue on production work done by agency staff now included under "advertising billings" rather than "all other sources".

Table 30 provides a breakdown of advertising billings by medium and by kind of service (media billings vs. production charges) for 1969. The print and television media jointly accounted for \$358,890,000 or nearly 80.0 p.c. of total advertising billings, with radio (13.4 p.c.) and the other advertising media trailing far behind.

### 30.—Advertising Billings to Clients, by Medium and by Kind of Service, 1969

Medium	Media Billings	Production Charges	Total Billings	Percentage Distribution (Total Billings)
	\$	\$	\$	p.c.
Print.....	158,807,158	35,877,265	194,684,423	43.2
Television.....	138,061,154	26,144,423	164,205,577	36.5
Radio.....	55,031,900	5,194,658	60,226,558	13.4
Direct mail, point of purchase, brochures, catalogues, contests, etc.....	...	15,347,728	15,347,728	3.4
Outdoor and transportation.....	12,428,804	1,880,316	14,309,120	3.2
Other.....	...	1,558,943	1,558,943	0.3
<b>Totals.....</b>	<b>364,329,016</b>	<b>86,003,333</b>	<b>450,332,349</b>	<b>100.0</b>

## Credit Statistics

**Sales Financing.**—During 1970, two important changes affecting both coverage and concept were made in the annual survey of sales financing: first, coverage was extended to include the sales financing (comprising mostly "other consumer goods" financing) of consumer loan companies, which increased the value of paper purchased during the year by \$140,000,000 and year-end balance outstanding by \$100,000,000; secondly, the financing of new passenger vehicles, the use of which is essentially of a commercial nature, was transferred from the "consumer goods" sector to the "commercial and industrial goods" sector (see Table 31). As a result of these changes, the comparability of 1970 data with those of earlier years has been seriously affected.



Although total balances outstanding of \$2,249,000,000 were reported on the books of sales financing companies at year-end—indicating a 3.1-p.c. increase over the previous year's record level of \$2,180,000,000—business activity in general during 1970 was not as brisk as in 1969. If the 1969 data were re-calculated on the "new" basis outlined above, the year-to-year comparison would actually result in a *decline* of 4.9 p.c. The only series that maintained an upward trend was the financing of used commercial vehicles, which rose 9.0 p.c. from \$75,000,000 in 1969 to \$82,000,000 in 1970. The lower volume of sales financing is most vividly depicted in the data on paper purchased, which fell 6.8 p.c. between 1969 and 1970 despite the infusion of instalment paper purchases of consumer loan companies.

**31.—Sales Finance Company New Paper Purchased and Balances Outstanding,  
by Class of Goods, 1966-70**

(Millions of dollars)

Class of Goods	Paper Purchased					Balances Outstanding Dec. 31—				
	1966	1967	1968	1969	1970	1966	1967	1968	1969	1970
<b>Consumer Goods.....</b>	<b>1,058</b>	<b>995</b>	<b>1,093</b>	<b>1,181</b>	<b>965</b>	<b>1,184</b>	<b>1,105</b>	<b>1,125</b>	<b>1,264</b>	<b>1,136</b>
New passenger cars.....	570	530	602	659	402	949	876	907	720	523
Used passenger cars.....	298	271	288	282	215				279	239
Radio and television sets, household appliances, furniture and other consumer goods.....	190	194	203	240	348	235	229	218	265	374
<b>Commercial and Industrial.....</b>	<b>468</b>	<b>462</b>	<b>523</b>	<b>752</b>	<b>836</b>	<b>668</b>	<b>632</b>	<b>662</b>	<b>916</b>	<b>1,113</b>
New commercial vehicles.....	147	149	171	251	408	254	235	258	288	502
Used commercial vehicles.....	51	51	56	73	76				75	82
Other commercial goods.....	270	262	296	428	352	414	397	404	553	529
<b>Totals<sup>1</sup>.....</b>	<b>1,526</b>	<b>1,457</b>	<b>1,616</b>	<b>1,933</b>	<b>1,802</b>	<b>1,852</b>	<b>1,737</b>	<b>1,787</b>	<b>2,180</b>	<b>2,249</b>

<sup>1</sup> The components may not add to totals due to rounding.

**Consumer Credit.**—Although the total volume of credit extended to consumers by retail stores and selected financial institutions has grown progressively from the early 1950s to a record level of \$11,525,000,000 in 1970, the annual rates of increase have shown a tendency to decline during periods of credit restraint and weakness in buyer demand. During the 1961-69 period, the annual rate of increase in balances outstanding averaged 12.5 p.c. In 1970, however, balances increased by only 5.1 p.c.—the smallest since 1957—reflecting not only a reduced rate of credit expansion but also a statistical adjustment in the treatment of passenger cars used for commercial purposes, i.e., taxi fleets, auto rental fleets, etc. The effect of the latter change was to transfer approximately \$182,000,000 into "non-consumer" financing.

The growth of consumer credit has not been entirely consistent, particularly when viewed from the position of the credit-holder. The chartered banks have been by far the most active financial institutions engaged in this sphere of financing; consequently, their share of consumer credit rose from 23.8 p.c. in 1961 to 40.5 p.c. in 1970. In contrast, sales finance and consumer loan companies accounted for 31.3 p.c. of consumer credit (balances outstanding) in 1961 and 24.7 p.c. in 1970. The share of consumer credit held by retail stores also declined markedly during this period, falling from 24.9 p.c. to 13.5 p.c. It should be noted that the figures in Table 32 are exclusive of various forms of service and personal credit on which no detailed information is available.

**32.—Consumer Credit Balances Outstanding, by Selected Holders, 1961-70**

(Millions of dollars)

Year	Retail Trade Credit <sup>1</sup>	Sales Finance and Consumer Loan Companies			Life Insurance Companies Policy Loans	Chartered Banks <sup>1</sup>	Credit Unions and Caisses Populaires	Other Credit Holders <sup>2</sup>	Total <sup>2</sup>
		Instalment Financing of Consumer Goods Only	Cash Loans under the Small Loans Act (under \$1,500)	Other Cash Loans					
1961.....	1,074	802	426	122	358	1,030	451	56	4,319
1962.....	1,114	853	482	180	372	1,183	523	62	4,769
1963.....	1,169	929	530	225	385	1,432	614	67	5,351
1964.....	1,235	1,089	575	275	398	1,793	705	74	6,143
1965.....	1,313	1,198	628	348	411	2,241	813	88	7,040
1966.....	1,353	1,258	648	441	450	2,458	937	104	7,648
1967.....	1,385	1,183	636	589	486	2,980 <sup>r</sup>	1,094	121	8,474
1968.....	1,440	1,221	619	798	553	3,673 <sup>r</sup>	1,247	152	9,704
1969.....	1,529	1,371	596	1,079	660 <sup>r</sup>	4,157 <sup>r</sup>	1,401	177	10,969
1970.....	1,551	1,136	525	1,190	759	4,663	1,493	208	11,525

<sup>1</sup> Includes personal loans other than secured loans, home improvement loans and mortgages.  
 Quebec savings banks loans and oil company credit card balances.

<sup>2</sup> Includes

**Retail Credit.**—This section permits a closer examination of recent trends in the "retail credit" component of consumer credit. Retail credit is defined as the value of accounts outstanding on the books of Canadian retailers, including department stores and their "captive" acceptance companies, adjusted to exclude non-consumer credit accounts.

During 1966-70, total retail credit outstanding rose by 14.6 p.c.—somewhat less than the 22.8-p.c. increase in retail sales over the same period. As noted in the preceding section, the proportion of consumer credit accounted for by retail stores has fallen significantly during the past few years—standing at 13.5 p.c. at the end of 1970. Much of this decline can be explained by the 12.0-p.c. drop in credit advanced by stores in the furniture, appliance and home furnishings group. However, as shown in Table 33, a vigorous growth in credit outstanding was experienced by fuel dealers, "all other" automotive businesses, men's clothing stores, general merchandise stores and general stores. Department stores continued to dominate the retail credit field and even improved slightly on their share of this market—from 45.1 p.c. in 1966 to 46.4 p.c. in 1970.

**33.—Retail Credit Outstanding, by Kind of Business, 1966-70**

(Millions of dollars)

Kind of Business	1966	1967	1968	1969	1970	Percentage Change 1966-70
Groceries and all other food stores.....	59.2	60.6	61.8	61.4	57.5	- 2.9
Department stores.....	610.2	617.8	643.8	704.5	720.0	+18.0
General merchandise stores.....	16.0	21.3	21.5	22.1	20.2	+26.2
General stores.....	38.2	40.8	40.9	43.7	48.3	+26.4
Variety stores.....	27.4	28.2	26.1	27.0	27.5	+ 0.4
Motor vehicle dealers.....	47.9	51.6	57.3	61.0	56.9	+18.8
Service stations and garages.....	54.9	54.4	62.1	63.5	64.6	+17.7
All other automotive businesses.....	48.6	52.9	57.5	62.7	72.1	+48.4
Men's clothing stores.....	28.2	30.3	30.8	33.1	37.1	+31.6
Women's clothing stores.....	25.2	27.8	27.9	30.5	29.6	+17.5
Family clothing stores.....	33.8	35.1	36.1	38.7	37.3	+10.4
All other apparel and accessories stores.....	15.5	15.9	16.3	16.7	17.1	+10.3
Hardware stores.....	26.8	26.0	28.1	28.5	28.4	+ 6.0
Furniture, TV, radio and appliance stores.....	162.2	159.0	156.5	152.0	148.0	- 8.8
All other home furnishings stores.....	22.5	20.3	18.5	16.7	15.2	-32.4
Fuel dealers.....	67.0	73.5	84.6	98.2	109.3	+63.1
Jewellery stores.....	26.8	28.4	29.4	29.5	25.2	- 6.0
All other retail stores.....	42.5	40.9	41.0	38.8	36.6	-13.9
<b>Totals, Retail Credit.....</b>	<b>1,352.9</b>	<b>1,384.6</b>	<b>1,440.4</b>	<b>1,528.7</b>	<b>1,550.9</b>	<b>+14.6</b>

## Section 2.—The Marketing of Agricultural Products\*

### Subsection 1.—The Grain Trade, 1969-70 and 1970-71

#### The 1969-70 Crop Year

Estimated domestic supplies of wheat, oats, barley, rye, flaxseed and rapeseed totalled 2,710,000,000 bu. in the crop year 1969-70, 19 p.c. above the 1968-69 total of 2,285,300,000 bu. Marketings of these grains in the Prairie Provinces amounted to 660,700,000 bu., a 13-p.c. increase over the 1968-69 level of 583,200,000 bu. and a 4-p.c. increase over the ten-year (1958-59-1967-68) average of 635,500,000 bu. Marketings of wheat during the 1969-70 crop year, at 413,300,000 bu., were down 2 p.c. and accounted for 63 p.c. of the total deliveries. Marketings of the other major grains (with totals for 1968-69 and ten-year averages, respectively, in brackets) in millions of bushels were: oats, 20.9 (41.6, 43.0); barley, 168.4 (81.8, 90.7); rye, 7.6 (3.8, 7.3); flaxseed, 22.1 (15.3, 16.1); and rapeseed, 28.5 (17.6, 11.1).

As in the preceding crop year, an initial quota of 100 units was established effective Aug. 1, each unit being the equivalent of 4 bu. of wheat, or 10 bu. of oats, or 6 bu. of barley, or 6 bu. of rye; the producer could deliver any combination of these grains amounting to 100 units. The Board also announced that the initial quota would be followed by general quotas at individual points as space became available and the first of these became effective Dec. 17, 1969. The quotas were based on the producers' specified acreage which consisted of acreage seeded to wheat (including Durum), oats, barley and rye, plus acreage summer-fallowed or cultivated and producing eligible forage crops.

Stocks of grain in commercial positions were at a record level at the beginning of the 1969-70 crop year and remained relatively high throughout the year, so that the movement of grain into country elevators was directly related to the disappearance in export and domestic channels. Large farm supplies, particularly of wheat, resulted in substantial volumes being marketed at each quota level. In addition, it was necessary to create additional space in the elevator system to permit an efficient movement of grain required to meet market demands. For these reasons, the general quota advanced slowly throughout the crop year.

An increased demand for export barley and Durum wheat developed in the fall of 1969. To be assured of supplies to meet commitments, supplementary quotas were authorized for these two grains and farm deliveries under the supplementary quotas were relatively large. Also, farm deliveries of oilseeds under the seeded acreage quotas were larger than marketings of a year earlier.

On Feb. 27, 1970, the Board announced that it would equalize the general quota at the 4-bu. level by the end of the crop year. Special delivery permits were granted to those producers unable, through no fault of their own, to deliver the 4-bu. quota.

In addition to the unit and specified acreage quotas, other quotas were authorized on specific grains and oilseeds throughout the 1969-70 crop year, as summarized in the following paragraphs.

*Durum Wheat.*—Durum wheat was included in the specified acreage in the 1969-70 crop year but, in order to meet overseas and domestic requirements prior to the closing of navigation, a supplementary quota was authorized on high-grade Durum of the larger of 5 bu. per seeded acre or 250 bu. for the period Sept. 2 to Nov. 28, 1969, extended on Nov. 7 to July 31, 1970. On Jan. 9, 1970, a supplementary quota on high-grade Durum wheat of an additional 3 bu. per seeded acre was authorized for the period Jan. 9 to Mar. 31, 1970, extended on Feb. 27 to July 31, 1970.

*Soft White Spring Wheat.*—A supplementary quota of 8 bu. per acre seeded to Soft White Spring wheat was authorized on Dec. 16, 1969; on Feb. 20, 1970, this quota was increased to 16 bu. per seeded acre.

\* Prepared (November 1971) in the Agriculture Division, Statistics Canada.



**Oats.**—A supplementary delivery quota of one carlot of oats suitable for milling or other purposes was authorized on Dec. 3, 1969. On Jan. 12, 1970, a revision was implemented and only oats suitable for the manufacture of rolled oats and/or oat groats were authorized until June 30, 1970.

**Barley.**—A supplementary quota of 3 bu. per seeded acre or 250 bu., whichever was the greater, was authorized for the period Sept. 30 to Nov. 28, 1969. It was reinstated on Feb. 27, 1970 for the remainder of the crop year and then, on Apr. 17, was increased to 6 bu. per seeded acre. Effective May 27, a further supplementary quota of the larger of 10 bu. per seeded acre or 1,000 bu., was authorized for all delivery points in Manitoba and Saskatchewan.

Effective Aug. 1, 1969, producers could deliver, under special permit, one carlot of barley suitable for malting, pot or pearling, provided a sample had been submitted to and accepted by a maltster or a shipper on a premium basis. On Dec. 5, 1969, provision was made for producers to deliver a second carlot of barley of the Olli variety and this privilege was further extended on Apr. 9, 1970 to any additional carlots of Olli barley. On Mar. 3, the provision to allow barley deliveries in excess of established quotas was extended to a second carlot of 2-Row barley and on May 14 this privilege was extended to any additional carlots of 2-Row barley.

**Rye.**—Rye acreage was again contained in the specified acreage and thus deliveries were subject to the general quota but on Dec. 10, 1969, a supplementary quota of 3 bu. per seeded acre was authorized. This quota was increased to 8 bu. per acre on Feb. 4, 1970 and to 13 bu. per acre on May 15, 1970; it expired on June 30, 1970.

**Flaxseed.**—Effective Aug. 1, 1969, a delivery quota of 5 bu. per seeded acre or 250 bu., whichever was the greater, was established for flaxseed. As in previous years, the producer could deliver flaxseed within the existing quota to any delivery point at which space was available. On Nov. 20, 1969, the quota was increased to the larger of 8 bu. per seeded acre or 400 bu. and on Feb. 5th, 1970 it was further increased to 11 bu. per acre. On Mar. 13, 1970, the delivery quota was declared open for the remainder of the 1969-70 crop year.

**Rapeseed.**—Effective Aug. 1, 1969, a quota of 5 bu. per seeded acre or 250 bu., whichever was the larger, was authorized for rapeseed. As in previous years, producers could deliver rapeseed within the existing quota to any delivery point at which space was available. On Oct. 14, 1969, the quota was increased to the larger of 8 bu. per acre or 400 bu., and on Jan. 16, 1970, to 13 bu. per seeded acre. On Mar. 13, 1970, the quota was declared open at all delivery points for the remainder of the 1969-70 crop year.

**Wheat.\***—Domestic supplies of wheat in 1969-70 were at an all-time high of 1,536,100,000 bu., 17 p.c. above the 1968-69 previous record total of 1,315,400,000 bu. The 1969 production of wheat was 684,300,000 bu. compared with 649,800,000 bu. in 1968 and carryover stocks were 851,800,000 bu. compared with 665,500,000 bu. Exports of wheat and flour in terms of wheat during the 1969-70 crop year, at 346,500,000 bu., were 13 p.c. above the 305,800,000 bu. exported in 1968-69 and 11 p.c. more than the long-term average of 312,600,000 bu. but were 14 p.c. less than the ten-year average of 404,500,000 bu.

During the crop year 1969-70, marketing of western Canadian wheat was again conducted by the Canadian Wheat Board on a one-year Pool basis, the initial payment being \$1.50 per bu. basis No. 1 Northern in store Thunder Bay or Vancouver. On June 17, 1971, the Board announced that the final payment to Canadian wheat producers for deliveries during the 1969-70 crop year totalled \$31,367,473; the final payment averaged 7.66 cents per bu.

The International Grains Arrangement (IGA) became effective on July 1, 1968 for a three-year period. It consists of two legal instruments—a Wheat Trade Convention and a Food Aid Convention. The International Wheat Council, established in London, England, by the International Wheat Agreement 1949, continues in being for the purpose

\* Data dealing with the operation of the International Grains Arrangement are from the 1969-70 Annual Report of the Canadian Wheat Board.



of administering the Wheat Trade Convention and providing service to the Food Aid Committee, the body that reviews contributions made under the Food Aid Convention.

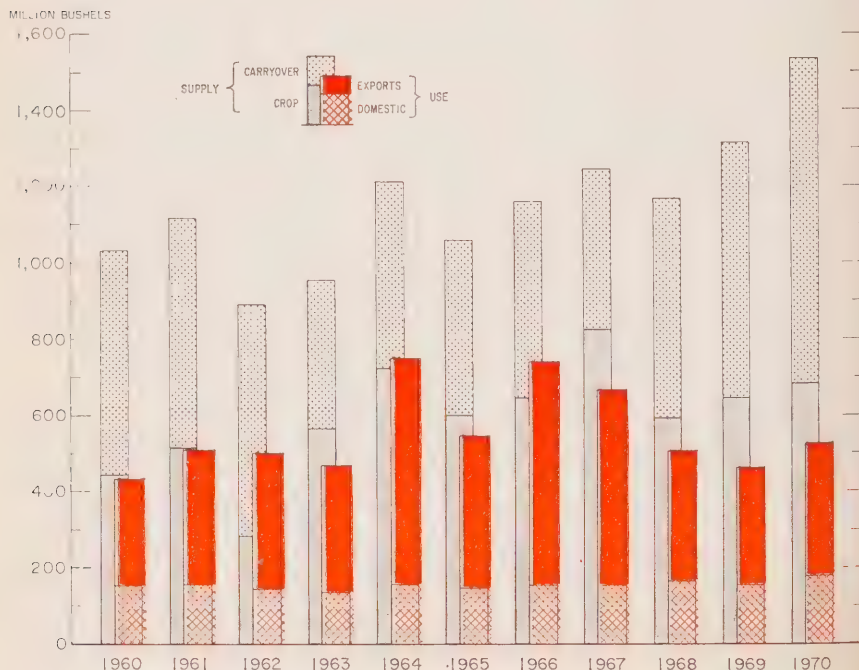
Preparatory discussions were held during the latter part of the crop year to establish the required machinery for a possible re-negotiation of the International Grains Arrangement.

*The Wheat Trade Convention.*—During the 1969-70 crop year (July-June), the IGA had 34 importing and 10 exporting countries plus the European Economic Community (EEC and its six member states) participating in the Arrangement. The EEC, which regularly engages in both import and export activities, is listed simultaneously as an exporting country and as an importing country with all the rights and obligations deriving therefrom.

IGA member countries are involved, either as importers or exporters, in over 90 p.c. of the total world trade, commercial and non-commercial, of wheat and wheat flour. However, only commercial sales between members are explicitly subject to the terms of the Wheat Trade Convention. Commercial sales by member exporting countries to member importing countries in 1969-70 amounted to 707,000,000 bu., constituting 38.5 p.c. of total world trade in wheat and flour.

All member importing countries, under the terms of the Wheat Trade Convention, each year agree to purchase a stipulated percentage of their wheat imports from other member countries; the quantity obligated by all importers in 1969-70 averaged 73 p.c. As a matter of record, member importing countries, as a group, purchased 92 p.c. of their import requirements from other member countries in 1969-70. Only Lebanon, with an obligation to purchase 70 p.c., in fact purchased a lower percentage from other members of the Convention.

#### SUPPLY AND DISPOSITION OF CANADIAN WHEAT CROP YEARS ENDED JULY 31, 1960-70



The pricing provisions of the IGA were not adhered to by member countries during the 1969-70 crop year.

*The Food Aid Convention.*—Eleven countries plus the EEC and its member states were members of the Food Aid Convention in its second year of operation. Over-all commitments, including cash contributions, by members in 1969-70 exceeded the total obligation of approximately 4,259,000 tons. Canada's contribution was 25,033 tons—900,000 bu. in excess of its obligation of 495,000 metric tons (18,200,000 bu.).

*Price Guarantee for Domestic Sales.*—On Aug. 1, 1969, the Minister of Industry, Trade and Commerce and the Minister of Agriculture issued a joint statement on the Canadian grain situation which included the following announcement relative to the domestic price of Canadian wheat. "It has not been possible for Canada, because of actions by other exporters, to maintain the minimum International Grains Arrangement price in export markets. But the government had decided to guarantee producers that the price of wheat sold on markets where it has control will not fall below the minimum set under the International Grains Arrangement. This now amounts to \$1.95½ per bu., basis No. 1 Northern. This means that wheat sold for most users in Canada other than for livestock and poultry feeding will bring the appropriate International Grains Arrangement price. This move will guarantee western farmers the International Grains Arrangement minimum on an important portion of their wheat. At the same time there is no justification for an increase in the price of bread or other wheat products. The milling industry, for example, has until only very recently been paying the International Grains Arrangement minimum price or higher."

**Grain Marketings.**—The 1969-70 exports of bulk wheat, at 317,700,000 bu., were higher than the preceding year's total of 280,500,000 bu. but lower than the recent ten-year average of 366,400,000 bu.

During the 1969-70 crop year, the People's Republic of China, with purchases of 65,100,000 bu., remained Canada's principal wheat customer; Britain was second with imports of 52,700,000 bu. and the Soviet Union third with purchases of 47,300,000 bu. Sales of Canadian wheat to Japan, at 39,000,000 bu., declined somewhat during the 1969-70 crop year and moved that country to fourth position. Other leading markets with quantities in millions of bushels (1968-69 figures in brackets) were as follows: India, 16.5 (15.3); Italy, 12.1 (15.2); Federal Republic of Germany, 9.7 (12.8); Belgium and Luxembourg, 9.0 (7.5); the Netherlands, 7.1 (5.8); Peru, 6.2 (nil); and Cuba, 5.2 (1.7).

The export movement of Canadian wheat flour during the 1969-70 crop year amounted to 11,800,000 cwt. (27,000,000 bu. of wheat equivalent), some 10 p.c. above the 1968-69 total of 24,600,000 bu. Cuba was Canada's major customer for wheat flour, taking 6,000,000 cwt. or 13,800,000 bu. of wheat equivalent and accounting for 51 p.c. of the crop-year total. Britain, with imports equivalent to some 2,000,000 bu., accounted for 7 p.c. of the crop-year total, and Ceylon and Burma imported 1,300,000 bu. and 1,200,000 bu., respectively.

Marketings of western Canadian oats and barley were again carried on through compulsory crop-year Pools administered by the Canadian Wheat Board. The initial payment for oats, basis No. 2 C.W. in store Thunder Bay, during the 1969-70 crop year, at 60 cents per bu., was 5 cents below the 1968-69 initial payment. The initial payment for barley, basis No. 3 C.W. Six-Row in store Thunder Bay, at 91 cents per bu., was 15 cents lower than in the previous year. No interim payments were made on either grain during the crop year. On Feb. 4, 1971, final payments on the 1969-70 oat and barley Pools were announced.

Combined exports of oats, seed oats, barley, rye, flaxseed and rapeseed (including customs exports of oatmeal and rolled oats, and malt in terms of grain equivalent) amounted to 138,100,000 bu. during the crop year 1969-70. This figure was sharply above both the comparable 1968-69 level of 61,100,000 bu. and the ten-year (1958-59-1967-68) average of 84,200,000 bu.

Exports of Canadian oats in bulk totalled 4,800,000 bu. during 1969-70 compared with 2,300,000 bu. shipped during the previous year. The Federal Republic of Germany was the principal market for this grain with purchases of 2,600,000 bu., while the United States accounted for a further 1,000,000 bu. Other shipments went to the Netherlands, 500,000 bu.; Britain, 400,000 bu.; Belgium and Luxembourg, 200,000 bu.; and Syria and Switzerland, 100,000 bu. each. In addition, exports of Canadian oatmeal and rolled oats amounted to the equivalent of 61,000 bu. in 1969-70 against 79,000 bu. the year before.

Barley exports, at 82,700,000 bu., were at their highest level since the 1953-54 crop year (90,000,000 bu.) and represented the third largest clearances on record. Britain remained the major market for this grain with imports of 19,600,000 bu., approximately double the 1968-69 figure. Japan was second, purchases by that country having risen from less than 1,000,000 bu. in 1968-69 to 16,900,000 bu. in 1969-70. Italy, not recorded as a market during the 1968-69 crop year, was the destination for 12,600,000 bu. and the United States accounted for a further 10,300,000 bu. Shipments to other major customers were as follows (with totals for the previous year in brackets) in millions of bushels: Federal Republic of Germany, 6.3 (nil); Israel, 5.3 (1.3); Poland, 4.8 (nil); Colombia, 1.8 (nil); New Zealand, 1.2 (nil); and the Netherlands, 1.0 (nil).

In addition to the exports of Canadian barley as grain, shipments of malt in 1969-70 were the equivalent of 5,600,000 bu., a slight increase over the 1968-69 figure of 5,200,000 bu. Exports of malt were shipped to 22 different destinations, the major markets being Japan, 1,400,000 bu.; the United States, 1,300,000 bu.; Venezuela, 600,000 bu.; and the Philippines, 500,000 bu.

Exports of Canadian rye during the 1969-70 crop year, at 3,800,000 bu., were the lowest since 1960-61 when 2,600,000 bu. were recorded. Principal markets for this grain in 1969-70 were Japan, 2,000,000 bu.; the United States, 800,000 bu.; Britain, 500,000 bu.; the Netherlands, 300,000 bu.; and Denmark, 200,000 bu.

During 1969-70, clearances of Canadian flaxseed moving overseas amounted to 18,600,000 bu., 39 p.c. above the 13,400,000 bu. of the previous year. The leading market was Japan which imported 5,700,000 bu. followed by the Netherlands and Britain with 4,100,000 bu. and 2,900,000 bu., respectively. Relatively smaller shipments of Canadian flaxseed went to some 15 other overseas destinations. Exports of linseed oil were equivalent to about 1,100,000 bu. of flaxseed, most of which went to Britain.

In the 1969-70 crop year, trade in rapeseed amounted to 22,200,000 bu., an all-time high 55 p.c. above the 14,300,000 bu. of the previous year. Japan continued to be the major market for this oilseed with purchases of 14,400,000 bu., an increase of some 33 p.c. over 1968-69. Clearances to the Netherlands at 2,800,000 bu., and to the Federal Republic of Germany at 1,000,000 bu., were well in excess of 1968-69 exports to these countries. Mustard seed exports, at 2,700,000 bu., were below the 1968-69 level of 3,100,000 bu., the leading markets in 1969-70 for this product being the United States, Belgium and Luxembourg, Japan, the Netherlands, and the Federal Republic of Germany.

### 34.—Supply and Disposition of Canadian Grain, Crop Years Ended July 31, 1969 and 1970 (Millions of bushels)

Item	Wheat	Oats	Barley	Rye	Flaxseed	Rapeseed
<b>Crop Year 1968-69</b>						
Carryover, Aug. 1, 1968.....	665.5	77.0	130.9	7.5	4.7	9.9
Production in 1968.....	649.8	362.5	325.4	13.0	19.7	19.4
Imports.....	—	—	—	—	1	—
<b>Totals, Supply.....</b>	<b>1,315.4</b>	<b>439.5</b>	<b>456.3</b>	<b>20.5</b>	<b>24.3</b>	<b>29.3</b>
Exports <sup>2</sup> .....	305.8	2.7	26.4	4.2	13.4	14.3
Domestic use <sup>3</sup> .....	157.7	308.1	230.5	7.6	6.0	9.9
<b>Totals, Disposition.....</b>	<b>463.5</b>	<b>310.8</b>	<b>256.9</b>	<b>11.8</b>	<b>19.4</b>	<b>24.3</b>
Carryover, July 31, 1969.....	851.8	128.7	199.4	8.7	4.9	5.1

For footnotes, see end of table.



### 34.—Supply and Disposition of Canadian Grain, Crop Years Ended July 31, 1969 and 1970— concluded

Item	Wheat	Oats	Barley	Rye	Flaxseed	Rapeseed
<b>Crop Year 1969-70</b>						
Carryover, Aug. 1, 1969.....	851.8	128.7	199.4	8.7	4.9	5.1
Production in 1969.....	684.3	371.4	378.4	16.5	27.5	33.4
Imports.....	—	—	—	—	1	—
<b>Totals, Supply.....</b>	<b>1,536.1</b>	<b>500.0</b>	<b>577.8</b>	<b>25.2</b>	<b>32.5</b>	<b>38.5</b>
Exports <sup>2</sup> .....	346.5	5.2	88.3	3.8	18.6	22.2
Domestic use <sup>3</sup> .....	180.9	353.5	289.4	10.7	7.9	12.6
<b>Totals, Disposition.....</b>	<b>527.4</b>	<b>358.7</b>	<b>377.7</b>	<b>14.5</b>	<b>26.5</b>	<b>34.8</b>
Carryover, July 31, 1970.....	1,008.7	141.3	200.1	10.6	6.0	3.6

<sup>1</sup> Fewer than 50,000 bu.      <sup>2</sup> Includes seed wheat, wheat flour in terms of wheat; seed oats, rolled oats and oatmeal in terms of oats; and malt in terms of barley.      <sup>3</sup> Includes human food, seed requirements, industrial use, loss in handling and animal feed.

### The 1970-71 Crop Year

The 1970-71 crop year opened with carryover stocks of the six major grains (wheat, oats, barley, rye, flaxseed and rapeseed) at 1,370,400,000 bu. Stocks of wheat at Aug. 1, 1970 amounted to 1,008,700,000 bu., significantly higher than the 851,800,000 bu. held in storage a year earlier. Aug. 1, 1970 stocks of the other major grains in millions of bushels (1969 figures in brackets) were: oats, 141.3 (128.7); barley, 200.1 (199.4); rye, 10.6 (8.7); flaxseed, 6.0 (4.9); and rapeseed, 3.6 (5.1).

Domestic production of the six major grains amounted to 1,258,600,000 bu. in 1970-71. Wheat decreased from 684,300,000 bu. in 1969-70 to 331,500,000 bu. in 1970-71, resulting in a total supply for the 1970-71 crop year of 1,340,200,000 bu. Oats declined from 371,400,000 bu. to 367,800,000 bu., for a supply of 509,200,000 bu. in 1970-71. An estimated 415,700,000 bu. of barley were produced which, combined with opening stocks, resulted in a supply for 1970-71 of 615,800,000 bu. Rye production rose to 22,400,000 bu. from 16,500,000 bu. in 1969-70, resulting in a supply for 1970-71 of 33,100,000 bu. Flaxseed and rapeseed production also increased to 48,900,000 bu. and 72,200,000 bu., respectively, the supplies amounting to 54,900,000 bu. and 75,800,000 bu., respectively.

Farmers' marketings of the six grains during the 1970-71 crop year amounted to 784,400,000 bu., an increase of 19 p.c. over the 1969-70 total of 660,700,000 bu. With the exception of wheat, each of the other five grains registered an increase in 1970-71 over 1969-70. Marketings of wheat at 383,900,000 bu. were down by 7 p.c. and accounted for 49 p.c. of all deliveries. Marketings of the other major grains in millions of bushels (1969-70 totals in brackets) were: oats, 57.9 (20.9); barley, 235.9 (168.4); rye, 11.7 (7.6); flaxseed, 33.6 (22.1); and rapeseed, 61.4 (28.5).

During 1970-71, Canada exported 704,900,000 bu. of the six major grains, including 24,700,000 bu. of wheat flour in terms of wheat equivalent. Export clearances of wheat rose to 409,400,000 bu., some 29 p.c. above the 1969-70 total of 317,700,000 bu. and nearly 11 p.c. more than the ten-year (1959-60-1968-69) average of 369,200,000 bu. Exports of oats at 13,100,000 bu. were sharply above the 1969-70 total of 4,800,000 bu. Barley exports rose to 172,300,000 bu. from the 1969-70 level of 82,700,000 bu. and rye exports also climbed to 8,900,000 bu. from 3,800,000 bu. Flaxseed and rapeseed exports both registered gains in 1970-71, rising to 21,200,000 bu. from 18,600,000 bu. and to 46,800,000 bu. from 22,200,000 bu., respectively.

Total domestic consumption of wheat in Canada declined to 155,600,000 bu. in 1970-71 from 180,900,000 bu. in 1969-70 due to a relatively sharp decrease in the estimated quantity fed which more than offset an increase in seed requirements. Domestic utilization of oats rose to 366,900,000 bu. from 353,500,000 bu., of barley to 293,200,000 bu. from 289,400,000



bu., and of rye to 11,800,000 bu. from 10,700,000 bu. Domestic disappearance of flaxseed declined from 7,900,000 bu. to 7,200,000 bu., while disappearance of rapeseed increased sharply from 12,600,000 bu. to 19,200,000 bu.

Stocks of wheat at the close of the crop year on July 31, 1971, stood at 749,500,000 bu., 26 p.c. below the closing stocks of the previous year. Year-end stocks of the other major grains were: oats, 128,900,000 bu.; barley, 143,000,000 bu.; rye, 12,400,000 bu.; flaxseed, 26,500,000 bu.; and rapeseed, 9,900,000 bu.

### Miscellaneous Grain Trade Statistics

**Grain Handled at Eastern Elevators.**—Total receipts of the six major grains at eastern elevators in the 1969-70 crop year amounted to 370,679,000 bu., 37 p.c. more than in the previous crop year. Shipments, amounting to 387,062,000 bu., were 57 p.c. above the 1968-69 level of 245,906,000 bu.

#### 35.—Canadian Grain Handled at Eastern Elevators, Crop Years Ended July 31, 1966-70

Item and Crop Year	Wheat	Oats	Barley	Rye	Flaxseed	Rapeseed	Total Grain
	bu.	bu.	bu.	bu.	bu.	bu.	bu.
<b>Receipts—</b>							
1965-66.....	440,515,042	36,369,468	36,727,865	3,590,874	6,341,684	196,514	523,741,447
1966-67.....	402,638,556	34,803,584	42,994,922	3,627,532	5,609,823	479,835	490,154,252
1967-68.....	191,627,275	29,229,428	30,053,168	2,457,441	4,582,264	255,197	258,204,773
1968-69.....	213,824,847	19,866,603	30,331,129	1,113,240	4,665,247	417,482	270,218,548
1969-70.....	253,376,063	23,415,024	78,475,969	1,766,690	10,318,158	3,326,999	370,678,903
<b>Shipments—</b>							
1965-66.....	464,113,311	35,130,369	35,506,689	3,489,923	6,057,491	196,514	544,494,297
1966-67.....	379,129,920	35,713,589	43,463,558	3,688,086	5,298,936	479,669	467,773,758
1967-68.....	206,975,805	29,543,851	30,873,957	2,819,070	4,771,788	205,219	275,189,690
1968-69.....	188,251,551	20,389,413	30,359,559	1,145,481	5,363,779	396,235	245,906,018
1969-70.....	272,513,405	23,701,354	75,960,239	1,551,584	9,940,968	3,394,724	387,062,274

**Lake Shipments of Grain.**—The 1970 navigation season opened at the Canadian Lakehead on Apr. 8 and closed on Dec. 23. During the season, shipments of wheat, oats, barley, rye, flaxseed, rapeseed and mustard seed totalled 472,195,000 bu., an increase of 79 p.c. over the 263,921,000 bu. shipped during the 1969 navigation season which opened on Apr. 11 and closed on Dec. 23.

#### 36.—Lake Shipments of Canadian Grain from Thunder Bay, Navigation Seasons 1969 and 1970

Grain	1969				1970			
	To Canadian Ports	To U.S. Ports	To Overseas Ports	Total Shipments	To Canadian Ports	To U.S. Ports	To Overseas Ports	Total Shipments
	bu.	bu.	bu.	bu.	bu.	bu.	bu.	bu.
Wheat.....	169,419,677	558,780	2,201,622	172,180,079	271,581,686	384,214	2,395,676	274,361,576
Oats.....	20,444,743	—	515,492	20,960,235	19,100,518	—	8,923,070	28,023,588
Barley.....	48,148,757	7,043,966	1,941,902	57,134,625	126,171,697	8,922,920	9,888,877	144,983,494
Rye.....	1,295,959	529,264	266,843	2,092,066	1,961,810	1,061,610	518,427	3,541,847
Flaxseed.....	6,685,229	—	2,061,964	8,747,193	10,788,477	—	1,933,840	12,722,317
Rapeseed.....	890,344	—	1,281,998	2,172,342	5,436,146	—	2,485,350	7,921,496
Mustard seed....	—	—	634,790	634,790	—	—	641,020	641,020
<b>Totals....</b>	<b>246,884,709</b>	<b>8,132,010</b>	<b>8,904,611</b>	<b>263,921,330</b>	<b>435,040,334</b>	<b>10,368,744</b>	<b>26,786,260</b>	<b>472,195,338</b>

**Licensed Grain Storage.**—Total grain storage capacity in Canada, licensed under the provisions of the Canada Grain Act by the Canadian Grain Commission, amounted to 700,095,000 bu. at Dec. 1, 1969, compared with 700,349,000 bu. at the same date in 1968. Lower capacity in interior private and mill, Pacific Coast and lower St. Lawrence ports more than offset an increase in western country elevators. Table 37 gives the amount in storage at three dates during the years. On July 31, 1970, 73.6 p.c. of the licensed storage capacity was occupied as compared with 77.3 p.c. on the same date of 1969.

**37.—Licensed Grain Storage Capacity and Grain in Store, Crop Years 1968-69 and 1969-70**

Crop Year and Storage Position	Licensed Storage Capacity	Canadian Grain <sup>1</sup> in Licensed Storage				Proportion of Licensed Storage Capacity Occupied		
	Dec. 1, 1968	Nov. 27, 1968	Apr. 2, 1969	July 31, 1969	Nov. 27, 1968	Apr. 2, 1969	July 31, 1969	
	'000 bu.	'000 bu.	'000 bu.	'000 bu.	p.c.	p.c.	p.c.	
1968-69								
Western country.....	394,279	312,356	314,341	351,710	79.2	79.7	89.2	
Interior private and mill.....	14,403	6,210	6,012	5,881	43.1	41.7	40.8	
Interior terminals.....	17,100	15,796	9,274	14,178	92.4	54.2	82.9	
Pacific Coast.....	29,668	14,848	18,707	15,971	50.0	63.1	53.8	
Churchill.....	5,000	4,639	4,739	4,548	92.8	94.8	91.0	
Thunder Bay.....	107,321	44,931	69,815	72,105	41.9	65.1	67.2	
Georgian Bay and upper Lake ports.....	35,316	28,531	14,469	25,898	80.8	41.0	73.3	
Lower Lake and upper St. Lawrence ports.....	19,100	10,700	7,273	10,193	56.0	38.1	53.4	
Lower St. Lawrence ports.....	69,932	39,565	27,720	35,544	56.6	39.6	50.8	
Maritime ports (excl. Newfoundland).....	8,229	6,055	1,842	5,594	73.6	22.4	68.0	
Totals, 1968-69.....	700,349	483,631	474,192	541,622	69.1	67.7	77.3	
	Dec. 1, 1969	Dec. 3, 1969	Apr. 1, 1970	July 31, 1970	Dec. 3, 1969	Apr. 1, 1970	July 31, 1970	
	'000 bu.	'000 bu.	'000 bu.	'000 bu.	p.c.	p.c.	p.c.	
1969-70								
Western country.....	397,349	340,100	320,386	347,329	85.6	80.6	87.4	
Interior private and mill.....	13,178	5,865	5,429	5,638	44.5	41.2	42.8	
Interior terminals.....	17,100	14,715	15,056	15,551	86.1	88.0	90.9	
Pacific Coast.....	28,318	16,960	17,828	17,790	59.9	63.0	62.8	
Churchill.....	5,000	4,694	4,694	4,155	93.9	93.9	83.1	
Thunder Bay.....	107,321	45,986	84,161	63,863	42.8	78.4	59.5	
Georgian Bay and upper Lake ports.....	35,316	31,346	9,517	23,013	88.8	26.9	65.2	
Lower Lake and upper St. Lawrence ports.....	19,100	12,690	9,069	8,185	66.4	47.5	42.9	
Lower St. Lawrence ports.....	69,182	46,536	26,789	25,863	67.3	38.7	37.4	
Maritime ports (excl. Newfoundland).....	8,229	7,292	1,548	3,789	88.6	18.8	46.0	
Totals, 1969-70.....	700,095	526,184	494,477	515,176	75.2	70.6	73.6	

<sup>1</sup> Wheat, oats, barley, rye, flaxseed and rapeseed.

**Production and Exports of Wheat Flour.**—Production of wheat flour in the 1969-70 crop year amounted to 39,640,000 cwt. and wheat milled for flour totalled 90,557,000 bu.; both were above the corresponding totals for 1968-69. Of the wheat milled for flour, approximately 76,368,000 bu. were western Canadian spring wheat (other than Durum) and the remainder was made up of 8,305,000 bu. of Ontario winter wheat, 4,445,000 bu. of Durum wheat and 1,440,000 bu. of other types. Utilization of milling capacity, based on a daily operating potential of some 170,000 cwt., averaged 77.7 p.c. in 1969-70 compared with 73.9 p.c. in the previous year. Exports of wheat flour in 1969-70 amounted to 11,723,000 cwt. compared with 10,705,000 cwt. exported in 1968-69.

**38.—Wheat Milled for Flour, and Production and Exports of Wheat Flour, Five-Year Averages 1945-65 and Crop Years Ended July 31, 1966-70**

Crop Year	Wheat Milled for Flour	Wheat Flour Production	Wheat Flour Exports	
			Amount	P.C. of Production
	'000 bu.	cwt.	cwt.	
Av. 1945-46—1949-50.....	107,330	47,011,540	25,819,721	54.9
Av. 1950-51—1954-55.....	100,446	43,847,894	21,812,041	49.7
Av. 1955-56—1959-60.....	90,148	39,752,589	16,349,155	41.1
Av. 1960-61—1964-65.....	91,128	40,834,088	15,769,805	38.6
1965-66.....	97,926	43,531,263	16,576,117	38.1
1966-67.....	90,085	39,978,571	13,848,208	34.6
1967-68.....	84,769	37,755,841	10,734,857	28.4
1968-69.....	85,049	37,621,151	10,705,452	28.5
1969-70.....	90,557	39,640,459	11,723,205	29.6

**Subsection 2.—Livestock Marketings\***

Marketings of all classes of livestock except hogs were reduced in 1970, and an absence of profitable export trade during most of the year left 3 p.c. more meat available for domestic use, largely attributable to a 10-p.c. increase in pork. However, despite reductions in the production of cattle, calves, sheep and lambs, the over-all increase in prices resulted in appreciable gains in the per head value in each of these classes.

Marketings of cattle through public stockyards, shipped direct to packing plants and on export, and to country points in another province, amounted to 3,242,938 head in 1970, down 2.6 p.c. from the previous year. Manitoba, with a 7-p.c. increase, was the only western province to show an appreciable advance in production. The sharpest decrease was in British Columbia which had 37.6 p.c. fewer marketings; Alberta dropped 4.7 p.c. and Saskatchewan 1.5 p.c. Ontario's production, despite a sharp increase in the live exports, dropped 5.5 p.c. but Quebec showed an increase of 25.6 p.c. Calf marketings followed the same trend, showing a decrease in output of 2.7 p.c. to 1,174,565 head. A feature of the calf market was the all-time high production in the Province of Quebec amounting to 438,130 head. The quality of beef cattle graded at inspected packing plants set a record in 1970, with 65.1 p.c. of the total gradings being choice and good carcasses. Prices were at the steadiest level on record, and the all-Canada average price for all cattle in 1970 was \$27.85, an increase of \$1.20 over the previous year. Choice and good veal and butcher calves showed the sharpest price advances of all slaughter classes of cattle and calves, the top grades of vealers averaging \$42.20, or \$2.10 above the previous year, and the top-quality heavy butchers averaging \$33.35, or \$3.65 higher than in 1969. Replacement cattle followed the price trends of top grades of the slaughter classes, with good feeder steers \$1.55 higher at \$32.75. Stock calves were nearly \$2 above the previous year.

Hog marketings in 1970 totalled 8,648,250, a number second only to the record set in 1944, and a 16-p.c. increase over 1969. The western provinces accounted for 70.9 p.c. of

\* More detailed information is available from Statistics Canada annual report *Livestock and Animal Products Statistics* (Catalogue No. 23-203) and the Canada Department of Agriculture publication *Livestock Market Review*. Statistics of livestock and poultry production and disappearance are given on pp. 561-564.

the year's increase in production with Manitoba reaching an all-time high. The average weight of hogs slaughtered in federally inspected packing plants showed an increase of 2 lb. per carcass at 165.4 lb. dressed. Heavier carcass weights continue to prevail since the introduction of the new hog carcass evaluation system. The average price paid for all hogs declined by \$5.10 per cwt. to \$30.10.

Sheep and lambs shipped to public stockyards, packing plants and on export, and shipments from country points in one province to those in another totalled 228,122 head, a reduction of 18.6 p.c. from 1969. This was the lowest total output through commercial channels and inspected slaughterings ever recorded. Quality remained high with 84 p.c. of the carcasses graded as choice and good, compared with 85 p.c. in 1969. The all-markets average for sheep and lambs combined was 50 cents above 1969 at \$27.90 per cwt.; in contrast the good lambs were up only 15 cents at \$30.60 compared with 1969.

### 39.—Livestock Marketed at Stockyards and Packing Plants, by Grade, 1966-70

Livestock	1966	1967	1968	1969	1970
	No.	No.	No.	No.	No.
<b>Cattle.....</b>	<b>3,318,109</b>	<b>3,199,171</b>	<b>3,328,888</b>	<b>3,231,754</b>	<b>3,126,344</b>
Steers— <sup>1</sup>					
Choice.....	760,416	746,825	790,792	883,601	960,462
Good.....	308,920	331,212	350,426	328,874	316,368
Medium.....	173,325	180,448	172,618	140,064	135,062
Common.....	54,720	51,924	56,657	47,630	45,352
Heifers— <sup>1</sup>					
Choice.....	195,352	215,474	242,073	304,311	277,229
Good.....	183,809	188,171	227,147	225,108	191,227
Medium.....	141,458	136,145	137,374	93,146	69,655
Common.....	62,514	64,969	58,402	37,191	30,409
Cows.....	823,093	708,869	737,182	636,058	589,422
Bulls.....	67,808	60,758	64,240	61,863	60,306
Feeder steers.....	393,515	376,611	353,191	348,369	336,856
Stock and feeder cows and heifers.....	153,379	147,765	138,777	125,539	113,996
<b>Calves.....</b>	<b>1,106,616</b>	<b>1,109,565</b>	<b>1,025,857</b>	<b>888,861</b>	<b>853,156</b>
Choice and Good—					
Veal.....	232,991	193,650	152,047	148,483	132,889
Butcher.....	40,870	45,382	38,519	20,315	13,882
Medium and Common—					
All weights.....	442,623	472,240	470,600	421,429	396,329
Stock.....	390,132	398,293	364,691	298,634	310,556
<b>Hog Carcass Gradings.....</b>	<b>6,860,030</b>	<b>8,186,356</b>	<b>8,145,147</b>	<b>7,481,479</b>	<b>8,648,250</b>
"A".....	2,792,351	3,331,351	3,388,214	138,035 <sup>2</sup>	155,252
"B".....	2,917,008	3,434,215	3,394,608	3,040,930 <sup>2</sup>	3,578,807
"C".....	425,598	508,853	506,177	1,264,929 <sup>2</sup>	1,392,595
"D".....	26,024	34,076	39,712	2,157,260 <sup>2</sup>	2,278,704
Light.....	112,744	150,702	159,484	134,970 <sup>2</sup>	161,921
Heavy.....	257,791	300,621	269,421	488,132	752,904
Extra heavy.....	81,811	100,241	84,893		
"E" <sup>3</sup> .....	49,085	58,137	54,142	45,171	45,612
Sows.....	197,618	268,160	248,496	212,052	282,455
<b>Lambs and Sheep Graded Alive.....</b>	<b>53,573</b>	<b>73,695</b>	<b>69,005</b>	<b>67,144</b>	<b>61,033</b>
<b>Lamb and Sheep Carcass Gradings.....</b>	<b>285,774</b>	<b>275,076</b>	<b>240,282</b>	<b>179,637</b>	<b>144,284</b>

<sup>1</sup> Includes fed calves. <sup>2</sup> Under the new classification (see text above) quality "A"=Indexes 112, 109-110; "B"=Indexes 105-107, 102-103; "C"=Index 100; "D"=Indexes 97-98, 92-95, 88; Light=Light and 80. <sup>3</sup> Includes injured hogs, ridgelings and stags.



**40.—Livestock Marketed at Public Stockyards, Packing Plants and Direct for Export,  
by Province, 1970**

Livestock	Atlantic Provinces	Quebec	Ontario	Manitoba	Saskat- chewan	Alberta	British Columbia	Total
	No.	No.	No.	No.	No.	No.	No.	No.
<b>Cattle</b> .....	<b>40,170</b>	<b>177,868</b>	<b>942,660</b>	<b>319,527</b>	<b>534,711</b>	<b>1,181,992</b>	<b>46,010</b>	<b>3,242,938</b>
Totals to stockyards.....	2,395	72,521	419,459	168,229	272,179	466,265	5,922	1,406,970
Direct to packers.....	31,449	94,914	465,734	147,465	237,316	707,805	34,691	1,719,374
Direct for export.....	5,696	10,433	57,245	1,089	1,723	3,610	1,246	81,042
Country points in other provinces <sup>1</sup> .....	630	—	222	2,744	23,493	4,312	4,151	35,552
<b>Calves</b> .....	<b>13,389</b>	<b>438,130</b>	<b>202,972</b>	<b>96,954</b>	<b>203,395</b>	<b>194,123</b>	<b>25,602</b>	<b>1,174,565</b>
Totals to stockyards.....	2,685	84,249	99,361	79,315	87,935	145,737	4,236	503,518
Direct to packers.....	4,040	243,721	80,826	5,836	5,138	7,045	3,032	349,638
Direct for export.....	1,284	110,160	22,784	356	40	986	55	135,665
Country points in other provinces <sup>1</sup> .....	5,380	—	1	11,447	110,282	40,355	18,279	185,744
<b>Hogs</b> .....	<b>354,681</b>	<b>1,746,405</b>	<b>2,945,864</b>	<b>1,093,165</b>	<b>871,751</b>	<b>1,647,902</b>	<b>65,368</b>	<b>8,725,036</b>
Totals to stockyards.....	—	3,658	438,698	325,620	23,256	226,823	30	1,013,085
Direct to packers.....	351,688	1,738,934	2,494,486	741,628	845,002	1,393,266	65,161	7,630,165
Direct for export.....	2,893	3,813	12,680	25,917	3,493	27,813	177	76,786
<b>Sheep and Lambs</b> .....	<b>11,197</b>	<b>20,595</b>	<b>82,580</b>	<b>5,731</b>	<b>22,672</b>	<b>73,909</b>	<b>11,438</b>	<b>228,122</b>
Totals to stockyards.....	2,595	4,435	61,156	3,894	7,406	19,525	843	99,854
Direct to packers.....	6,910	16,160	20,565	1,554	8,860	40,318	10,570	104,937
Direct for export.....	244	—	859	2	403	8,434	25	9,967
Country points in other provinces <sup>1</sup> .....	1,448	—	—	281	6,003	5,632	—	13,364
<b>Total Inward Movement</b> — <sup>2</sup>								
Cattle.....	222	1,117	130,947	54,405	89,016	207,548	514	483,769
Calves.....	1	1,870	274,051	13,975	38,785	138,122	723	467,527
Sheep and lambs.....	—	172	15,023	1,572	966	6,660	—	24,393

<sup>1</sup> Livestock billed through stockyards to country points outside province of origin. <sup>2</sup> Movement to farms from stockyards and plants, and shipments on through-billings from country points in one province to country points in another province.

### Section 3.—Co-operative Organizations\*

Canadian co-operative business volume declined in 1969 for the second consecutive year and for about the same reason—slumping grain exports. Total revenue of 2,373 local co-operatives came to \$2,092,100,000, 2 p.c. below the 1968 figure. The revenue of each of the four broad components of co-operative business was: farm product marketings, \$1,231,900,000, down 4 p.c.; sales of merchandise and supplies, \$727,200,000, up a modest 1 p.c.; revenue from services (trucking, cold storage, seed cleaning, etc.), \$65,700,000, down about \$400,000 or less than 1 p.c.; and miscellaneous income (rent, interest, dividends, etc.), \$16,100,000, up \$2,000,000 for a very substantial increase of 14 p.c.

Business co-operatives can be classified by their primary function into four main groups: marketing and purchasing (by far the largest group), service, fishermen's and wholesale. The first three groups are known as "local" co-operatives since they deal directly with individual members; the wholesale co-operatives, as their name indicates, perform wholesaling functions for the locals. Revenues of the wholesale co-operatives are usually presented separately from those of the locals since their sales are mostly a duplication of the locals' sales. Assets of the locals at Dec. 31, 1969 amounted to \$1,250,000,000 and represented a gain of \$73,000,000 or 6 p.c. over the year, almost half of which was due to increases in Prairie grain inventories. The number of co-operatives declined in 1969, continuing a long-term trend of readjustment, also evident in many other sectors of the econ-

\* Prepared in the Economics Branch, Canada Department of Agriculture, Ottawa.

omy, whereby one large integrated unit serves an area formerly served by several smaller units. Membership in co-operatives at 1,690,000 was down slightly from the previous year.

Marketing and purchasing co-operatives experienced an over-all reduction in business volume during 1969 with a fall-off in farm product marketings outweighing modest increases in sales of supplies, service revenue and other income. As already stated, farm product marketings of \$1,231,900,000 were down 4 p.c. Poultry and egg marketings, with the exception of the Maritimes, were lower in all areas, particularly in Alberta. The closing of two large co-operative meat-packing plants caused a decline in livestock volume despite good gains in British Columbia, Alberta and Saskatchewan. Grain marketings, as mentioned above, slipped again due to the continued slackness in grain exports. Dairy marketings continued the steady upward trend of previous years with all provinces contributing to the increase, most impressively Nova Scotia and Quebec. Fruit and vegetable marketings moved ahead a modest 3 p.c., led by British Columbia and Nova Scotia. Maple products, fur and lumber marketings also registered gains over the previous year while honey, tobacco and wool marketings eased downward. Sales of supplies and merchandise rose to \$721,400,000 during 1969 with all but Saskatchewan, Quebec and the interprovincial co-operatives sharing in the increase. The dollar value of feed sales declined slightly even though the physical volume increased, reflecting the availability of large, low-priced supplies of Ontario grains in Central Canada. Fertilizer volume slumped badly during the year with a drop of \$8,000,000 or 14 p.c. Although sales rose in some provinces, the Prairies experienced a severe downturn due to low farm income in the depressed grain economy. Fertilizer prices were also depressed because of excess capacity in the fertilizer industry generally. Food and petroleum products continued their unspectacular but steady gains. Clothing and home furnishings and hardware sales recorded impressive advances for 1969 but building materials and machinery sales eased off, due mainly to the depressed conditions in the Prairie Provinces. The miscellaneous sales category fell sharply but this was mostly caused by a Quebec co-operative's disposal of its textbook selling business. Assets of the marketing and purchasing co-operatives rose by \$62,000,000 or 6 p.c. over the year, with all provinces except New Brunswick contributing to the increase. The number of marketing and purchasing co-operatives continued to decline but, with the exception of Manitoba, membership remained relatively stable. The Manitoba membership figure was revised downward because a large co-operative made a major updating of its membership records.

Despite a good year for most of the co-operatives in the services sector, over-all revenues and membership were lowered by the severe curtailment of co-operative medical insurance coverage in Ontario and British Columbia where it was superseded by new government medical care plans. Total business volume of the service and production co-operatives in 1969 came to \$63,979,000 and included service revenue of \$36,500,000, marketings of farm products and sales of supplies of \$25,500,000, and miscellaneous income of \$1,970,000, as compared with \$65,100,000, \$38,427,000, \$24,971,000 and \$1,727,000, respectively, in the preceding year. Membership declined to 293,000, a loss of 23,000 during the year. Assets of these co-operatives had grown to \$140,266,000 at the 1969 year-end, a gain of almost \$11,000,000 centred in British Columbia, Alberta and Quebec. Fishermen's co-operatives recorded an impressive 15-p.c. recovery from the rather depressed levels of 1968, led by the fishermen from British Columbia but also including those from Nova Scotia, Newfoundland, Manitoba, Quebec and New Brunswick. Total business volume for 79 fishing co-operatives representing 9,000 fishermen spread over all 10 provinces amounted to \$32,490,000 in 1969 and was made up of fish marketings \$27,400,000, fishing and other supply sales \$4,066,000, and service revenue and other income \$1,000,000. Assets were \$18,100,000, more than half of which were located in British Columbia.

Wholesale volume climbed \$40,000,000 or 7 p.c. in 1969 and featured a rather large gain of 13 p.c. in farm product marketings and a not unusual but steady gain in supply sales of 4 p.c. The rise in marketings received its greatest impetus from a continued upward surge in Quebec dairy volume due to progressive improvements in production efficiency at the farm level and further co-ordination and streamlining of marketing facilities. Whole-

sale livestock marketings were also well ahead for the year, particularly in Ontario where the co-operative share of stockyard volume is expanding. Fish marketings rose impressively, reflecting improved economic conditions in the fishing industry generally. Feed and fertilizer were the only supply categories that declined during the year; the former due to low prices, and the latter due to both low prices generally and depressed demand in the Prairie Provinces. All other supply categories registered gains, although their rate of increase was adversely affected by the economic sluggishness of the Prairie Provinces. To sum up, total revenue of the wholesales amounted to \$600,200,000 and consisted of supply sales \$376,900,000, and farm product marketings \$223,300,000. The largest supply sale categories were food \$115,100,000, feed \$77,900,000, and petroleum \$65,600,000. Livestock (\$95,200,000) and dairy products (\$63,800,000) accounted for the bulk of marketings. Assets of the eight wholesales and one wholesaler for the wholesales totalled \$222,700,000 at Dec. 31, 1969.

**41.—Summary Statistics of Co-operative Marketing and Purchasing Associations, 1965-69 and by Province, 1968 and 1969**

Year and Province		Associations	Shareholders or Members	Farm Marketings	Sales of Merchandise	Total Business <sup>1</sup>
		No.	No.	\$'000	\$'000	\$'000
1965.....		1,495	1,307,000	1,201,700	549,400	1,774,600
1966.....		1,420	1,329,000	1,238,600	609,500	1,882,900
1967.....		1,357	1,363,374	1,372,842	681,356	2,090,976
1968.....		1,312	1,399,000	1,285,600	715,000	2,039,900
1969.....		1,244	1,388,000	1,231,900	721,400	1,995,600
<b>Province</b>						
Newfoundland.....	1968	36	10,000	200	9,000	9,200
	1969	35	11,000	1,000	10,700	12,100
Prince Edward Island.....	1968	18	10,000	4,300	8,300	12,800
	1969	18	10,000	4,300	9,100	13,600
Nova Scotia.....	1968	83	32,000	33,400	24,700	59,000
	1969	86	33,000	38,200	28,400	67,800
New Brunswick.....	1968	47	16,000	12,700	16,900	30,100
	1969	46	17,000	13,300	19,400	33,000
Quebec.....	1968	397	105,000	185,900	166,200	357,500
	1969	367	104,000	198,900	165,900	370,500
Ontario.....	1968	147	108,000	106,500	108,900	220,100
	1969	138	106,000	91,200	111,600	207,500
Manitoba.....	1968	91	186,000	51,000	58,000	120,300
	1969	85	171,000	43,400	58,600	115,100
Saskatchewan.....	1968	271	459,000	421,900	145,800	578,800
	1969	264	458,000	383,300	142,400	536,600
Alberta.....	1968	131	276,000	253,700	95,400	351,800
	1969	121	281,000	241,500	100,400	345,300
British Columbia.....	1968	86	56,000	97,800	51,100	150,500
	1969	79	55,000	105,900	51,400	158,800
Interprovincial.....	1968	5	141,000	118,200	30,700	149,800
	1969	5	142,000	110,900	23,400	135,000

<sup>1</sup> Includes service revenue and other income.

## 42.—Products Handled by Marketing and Purchasing Co-operatives, 1966-69

Product	Value of Sales			
	1966	1967	1968	1969
	\$'000	\$'000	\$'000	\$'000
<b>Marketing</b> .....	<b>1,238,600</b>	<b>1,372,842</b>	<b>1,285,600</b>	<b>1,231,900</b>
Dairy products.....	306,900	332,610	343,900	378,000
Fruits and vegetables.....	42,400	47,877	50,600	52,300
Grains and seeds.....	587,000	672,303	573,500	500,500
Livestock and livestock products.....	230,900	248,902	246,900	231,900
Eggs and poultry.....	57,500	57,200	57,500	54,700
Honey.....	5,200	3,616	4,900	4,700
Tobacco.....	700	1,485	1,700	1,400
Wool.....	1,300	1,105	1,000	900
Miscellaneous.....	6,700	7,744	5,600	7,500
<b>Purchasing</b> .....	<b>609,500</b>	<b>631,356</b>	<b>715,000</b>	<b>721,400</b>
Food products.....	166,900	189,472	208,100	223,200
Clothing and home furnishings.....	21,500	21,924	23,300	26,300
Hardware.....	41,500	50,011	52,500	57,200
Petroleum products.....	94,600	99,277	106,900	111,600
Feed.....	142,200	153,307	150,000	147,800
Fertilizer and spray material.....	39,900	55,276	56,900	48,600
Machinery and equipment.....	38,300	40,131	39,600	37,100
Building material.....	35,400	37,230	40,600	39,400
Miscellaneous.....	29,200	34,728	37,100	30,200
<b>Totals</b> .....	<b>1,848,100</b>	<b>2,054,198</b>	<b>2,000,600</b>	<b>1,953,300</b>

## PART II.—GOVERNMENT AIDS TO AND CONTROL OF DOMESTIC TRADE

## Section 1.—Aids and Controls Affecting the Marketing of Farm Products

## Subsection 1.—The Role of Government in the Grains Industry

The history of the grains industry in Western Canada is a record of the inter-relationships of producers, transportation, grain handling, shipping and export companies, whether investor- or farmer-owned, and of the provincial and federal governments. The inputs made by the Federal Government in the interest of the industry have ranged over a variety of areas. In the first instance, the Federal Government's contribution was by way of encouragement and assistance to railway construction and then by pursuit of a vigorous immigration policy to settle the western farming area. The Canada Department of Agriculture followed up with technical assistance in plant-breeding and production methods to improve yields of high-quality grains for which there was a ready export market. Simultaneously, the Federal Government was called upon to exercise a regulatory function within the industry which involved the establishment and definition of grades, supervision of weighing and dockage and equitable access to transportation. This regulatory function began before Confederation but was considerably advanced with federal legislation embodied in the Manitoba Grain Act of 1900 and the Canada Grain Act of 1912. Then, the First World War precipitated the Federal Government into a marketing role, marked by the formation of the Board of Grain Supervisors and its successor, the first Canadian Wheat Board.

In the decade of the 1920s, the marketing function reverted to the industry, during which time the Alberta, Saskatchewan and Manitoba Wheat Pools were formed to continue on a voluntary basis the pooling method employed on a compulsory basis by the Canadian Wheat Board.



Commencing in 1930, the Federal Government intervened once more to relieve the pools from the financial impact of the depression, and operated with federal financial support the Central Selling Agency of the pools as a price stabilization operation. In 1933, the Federal Government took the initiative in negotiating the first international wheat agreement in the hope of effecting price stability. In 1935, a new Canadian Wheat Board was created, which provided a floor price and accepted deliveries on a voluntary basis. Then, during the Second World War, the Wheat Board was given control over all wheat deliveries and, after the War, those of oats and barley as well. Also in the early postwar years, the International Wheat Agreement was re-negotiated and operated on a more continuing basis.

Canadian Cabinet Ministers to whom the Canadian Wheat Board has reported have assumed the primary responsibility for government grain policy, whether assisted by a Committee of the Cabinet or otherwise. The Minister traditionally has been the Minister of Trade and Commerce, but in more recent years the tendency has developed to assign the Wheat Board to a Minister whose background and experience are identified with the wheat growing area. In 1969, for the first time, a Minister was assigned the responsibility of the Canadian Wheat Board on a full-time basis. For a year he exercised this responsibility for grain policy exclusively, until he was also assigned an additional portfolio.

### Grains Group

In 1970, the Minister responsible for the Canadian Wheat Board organized the Grains Group, a body of grain policy advisers with specialties in production, marketing and transportation drawn from the federal departments and private industry. Under the Minister's direction, the Grains Group addressed itself to the re-examination of existing policies and their revision in order to expand markets and to shift production emphasis from crops in slow demand to others with better marketing prospects. Independently of the Grains Group, the Canadian Wheat Board simultaneously reviewed its own marketing policies. At that time, wheat stocks in Canada had risen far beyond market requirements, partly because government assistance had been favouring wheat at the expense of more marketable grains. The Government's concern concentrated on three broad areas of improvement within the grain industry: (1) aggressive development of new grain markets; (2) removal of extreme downward fluctuations in grain receipts; and (3) the adaptation of existing institutions and policies to provide producers with the best information on market demand.

Policy innovations initiated within the Grains Group include the following:—

Introduction of the 1970 LIFT program (see p. 542), which substantially reduced the wheat surplus and shifted production into more marketable patterns; Canadian exports of feed grains have risen to record levels over the past two years.

Revision of the quota delivery system to move grain forward to terminals, as required by market opportunities.

Revision of cash advance legislation to make it more adaptable to changing marketing conditions.

Announcement of initial payments for wheat, oats and barley and of initial quotas by Mar. 1 prior to the commencement of each crop year, in order that producers might have direct production guidance before seeding is begun.

Analysis of the alternative marketing systems available for rapeseed.

Cost analyses of the transportation system.

An income stabilization plan was devised, which awaits legislative action.

### Marketing

With the objective of achieving a sustained expansion of the total effective market for Canadian grains and oilseeds, the Government has established a market development program which is designed to expand export markets and to secure the maximum return from grains and oilseeds sales. A Market Development Fund of up to \$10,000,000 annually has been created to promote, initially, the marketing of grains and oilseeds. Provision for other agricultural products is also included. These monies will be expended both on pro-

motion and on capture of a larger share of existing domestic and export markets for food and feed and also on research into new products and uses for Canadian grains. Federal financial assistance to projects originating in the private sector is now available. Such assistance is open to Canadian companies, agencies, industry associations, universities, institutes, and similar entities which undertake projects that have a reasonable probability of contributing to a sustained increase in grains and oilseeds sales.

### Credit

In a policy statement made in 1968, the Prime Minister pronounced the Government's determination to maintain and improve Canada's share of the world wheat trade. In the furtherance of this objective, the Prime Minister stated, among other things, that wheat and flour would continue to represent an important share of the increasing expenditure on aid to developing countries and indicated the Government's intention to review and amend credit facilities available to improve the competitive position of Canadian wheat on world markets. Prior to 1969, Canadian credit sales of wheat and barley were generally facilitated in two ways. (1) Under Sect. 11 of the Canadian Wheat Board Act, sales were made on terms of 25 p.c. cash with the balance repayable over an 18-month credit period at interest rates based on the Wheat Board's rate for borrowing from chartered banks, backed by government guarantee. This facility helped to move between 50,000,000 and 100,000,000 bu. annually in the three years up to 1968-69. (2) Under Sect. 21 of the Export Credit Insurance Act (now replaced by the Export Development Corporation Act), the Canadian grain trade offered terms of up to three years at commercial rates of interest. This facility helped to move between 6,000,000 and 18,000,000 bu. annually in the three years up to 1968-69.

Since the mid-1950s there has been an increasing trend on the part of major grain exporting nations to utilize government-assisted credit programs to achieve grain sales abroad. In 1968-69, at least 30 p.c. of the world trade in wheat and flour was under such programs. Major competitors of Canada generally offered more liberal terms than those available from Canada.

In March 1969, the Cabinet approved expanded financial facilities to make Canadian wheat and flour exports more competitive as well as to provide flexibility to those developing countries that may prefer to receive a relatively large amount of food on concessional payment terms rather than a small amount on a grant-aid basis. These facilities had two distinct elements: (1) the extension of medium-term credit up to three years if necessary, at competitive interest rates to developing countries; and (2) the extension of credit at subsidized interest rates on terms exceeding three years to eligible countries. A substantial contribution to the volume of Canadian grain exports has been made since the inception of this program. Sales of grain on credit in the 1970-71 crop year reached a record 145,000,000 bu. and the Government's liability on credit sales of grain on July 31 was more than \$350,000,000.

### Food Aid

The Canadian Food Aid Program was expanded in 1963 when the Minister of the (then) Department of Trade and Commerce announced the Government's intention to increase on a progressive basis the amount of Canadian food aid, in appropriate relationship to the total of the country's assistance activities. Since 1963, food aid under bilateral and multilateral aid programs administered by the Canadian International Development Agency has moved increasingly larger amounts of wheat and flour. Wheat and flour shipments have generally accounted for about 90 p.c. of Canada's food aid over the past few years. Total food aid allocations rose from \$2,000,000 in 1962-63 to \$100,000,000 in 1966-67. Aid shipments of wheat and flour are contributing significantly to the total volume of grain exports. In the five-year period 1965-70, an annual average of 33,000,000 bu. of aid wheat and flour were shipped abroad compared with 6,900,000 bu. in the previous five years. In 1970-71, aid shipments of wheat and flour totalled 37,600,000 bu. Some of the countries that have

been among the largest recipients of Canadian aid expect to become self-sufficient in food grains in the very near future, but because of the uncertainties of climatic conditions and other factors in production, such as disease and pest control, it is expected that grains and their products will continue to be an important component of Canada's aid program.

### **Production**

In addition to the 1970 LIFT Program, the Government has initiated a Grassland Incentive Program to encourage increased forage acreage. The Program involves the expenditure of some \$40,000,000 over the three years commencing in 1971 to encourage the diversion of cultivated land into grassland up to a total of 4,000,000 acres.

A new departure by the Government, intended to provide producers with relevant information on which to base their seeding plans rather than having to rely on what has happened in the past, has been the initiation in March 1971 of an annual feature, namely, the announcement of initial payments for wheat, oats and barley on Mar. 1 for the subsequent crop year. Simultaneously with the announcement of initial payments, minimum quota levels for the following crop year were also announced. Again this will be part of an annual endeavour to help producers decide on the basis of more relevant information what their seeding plans should be each season. These announcements will be accompanied by the most up-to-date market outlook for the crops on which these indicators will be provided.

### **Grain Receipts Stabilization**

Government proposals for a Grain Receipts Stabilization Plan are at present (February 1972) before Parliament. Basically, the Prairie Grain Stabilization Account would be self-sustaining, based on Government and producer contributions, and the account would pay to grain farmers collectively for any crop year for which the payment is made, an amount equal to the difference between total eligible farm cash receipts for that crop year and the average of such receipts for the preceding five years.

As part of its effort to improve the farm income situation of grain producers in Canada, the Government has also established a minimum selling price for wheat sold in that portion of the market over which the Government can exert control, namely, the domestic market. Producers will receive \$3 per bu. for wheat used in domestic human consumption, based on No. 1 C.W. Red Spring wheat in store at Thunder Bay. The Federal Treasury will pay the difference between the selling price to millers of \$1.95½ per bu. and the \$3.

### **Grain Handling and Transportation**

In order to improve the efficiency of grain transportation within Canada, two significant changes in operating the present system have taken place recently.

The Canadian Wheat Board introduced a Block Shipping System to ensure that the type and grade of grain required for export is loaded in the country in an orderly fashion. Instead of allocating cars to individual elevator points as previously and loading whatever grain was available at that point, cars are now allocated by geographical area or block and the grain handling companies themselves allocate the cars to specific points that have the required grain available.

Port co-ordinators have been appointed at Vancouver and Thunder Bay to ensure the smooth day-to-day movement of grain through those ports. As the co-ordinators monitor the performance of individual components of the system, they are in a position to take remedial action as operating problems arise. Thus, cars of grain can be diverted from an elevator at the port that would not be able to unload them on the day of receipt to another elevator that could unload them immediately. Similarly, the requirements of arriving ocean shipping are studied to eliminate as far as possible the need for the ships to call at more than one elevator for the grain they require. The co-ordinators and their staff are employed by the Canadian Transport Commission.



These changes contributed in no small measure to the record movement of grain for export during the 1970-71 crop year when 705,000,000 bu. of grains and oilseeds were exported. Present indications are that exports for the 1971-72 crop year will be of the same order of magnitude.

The Grains Group are carrying out a detailed examination of the present grain handling and transportation system together with alternative systems to discover whether changes could be made to the present system that would increase Canada's competitive position in world markets and, as well, provide cost benefits to producers. It is anticipated that the results of these studies will be available early in 1972 for discussion and evaluation by interested parties.

### **The Canadian Grain Commission**

The Canadian Grain Commission was established by the Canada Grain Act (SC 1970-71, c. 7) on Apr. 1, 1971. It replaced the Board of Grain Commissioners for Canada which was originally established by the Canada Grain Act of 1912. It is composed of a Chief Commissioner and two Commissioners and is under the jurisdiction of the Canada Department of Agriculture. The headquarters offices of the Commission and its various Divisions are located at Winnipeg and its other offices are situated across Canada, the largest units being at the port areas of Vancouver, Thunder Bay and Montreal. Total staff is approximately 1,000.

The Commission is responsible for the administration of the Act, including the inspection, weighing and storage of grain; the fixing of maximum tariffs of charges for licensed elevators; the establishment of grain grading standards; and the operation of the Canadian Government elevators system.

All operators of elevators in Western Canada and of elevators in Eastern Canada that handle western-grown grain for export, as well as grain dealers in Western Canada, are required to be licensed by the Commission and to file security by bond or otherwise as a guarantee for the performance of all obligations imposed upon them by the Canada Grain Act or by the Canada Grain Act Regulations. On a fee basis, the Commission provides mandatory official inspection, grading and weighing of grain, as well as registration of terminal elevator and eastern elevator receipts. The Economics and Statistics Division is the basic source of statistics relating to grain handled through the Canadian licensed elevator system.

The Commission's Research Laboratory conducts surveys of the quality of each year's grain crops and of grain moving through the Canadian elevator system. It provides information on the quality of various varieties and grades of grain to the Inspection Division, collaborates with plant breeders in studies on new grain varieties and undertakes basic research in relation to quality characteristics of cereal grains and oilseeds.

The Canadian Government elevators, which are managed and operated by the Commission as licensed terminal elevators, are located at Moose Jaw, Saskatoon, Calgary, Edmonton, Lethbridge and Prince Rupert.

In the Prairie Provinces, the Commission has four Assistant Commissioners—one in Alberta, two in Saskatchewan and one in Manitoba—who investigate complaints of producers and inspect periodically the primary (country) elevators in their respective provinces. All grain elevators with their equipment and stocks of grain are subject to inspection by officials of the Commission at any time.

The Commission sets up western and eastern grain standards committees which participate in establishing grain grades and grade specifications, and recommend standard and export standard samples for various grades of grain. It also appoints grain appeal tribunals to give final decisions in cases where appeals are made against the grading of grain by the Commission's inspection officials.



### The Canadian Wheat Board

The Canadian Wheat Board was established under the Canadian Wheat Board Act of 1935 for the purpose of "the marketing in an orderly manner, in interprovincial and export trade, of grain grown in Canada" and now operates under RSC 1970, c. C-12.

This legislation established the Wheat Board as the sole marketing agency for Prairie wheat, oats and barley that is sold interprovincially or internationally. Other crops, such as rye, rapeseed, flaxseed, buckwheat and mustard are marketed by the private grain trade.

The Wheat Board's marketing responsibilities fall into three general areas—market development, the negotiation of sales, and the delivery of grain to customers.

Developing markets for Canadian grain is a complex task that involves promotion, research and extensive analysis of customer requirements. Information on crop production, grain prices, trade regulations, developments in milling and feeding industries, economic conditions and policy changes in countries around the world flow into the Wheat Board's offices in Winnipeg continuously. This information is augmented through first-hand discussions with buyers by senior Wheat Board personnel who travel extensively to overseas markets for Canadian grain. The market information that is acquired in this way enables the Wheat Board to react quickly to changing events and to develop effective programs for the sale of Prairie grain.

The sale of Prairie-grown wheat, oats and barley is essentially carried out in one of two ways—sales negotiated directly by the Wheat Board, and those negotiated through grain exporting companies acting as agents of the Wheat Board. Sales to such countries as the Soviet Union, the People's Republic of China, Brazil and Peru have traditionally been negotiated directly by the Wheat Board. Sales to such countries as the United Kingdom, Japan and the Federal Republic of Germany are usually made through Wheat Board export agents.

The grain exporting companies, however, are involved in the sale of all Wheat Board grains. The detailed arrangements for sales negotiated by the Board are carried out by the exporters after the terms of the contract have been established. On the other hand, when an exporting company completes a sale, in its capacity as an agent of the Board, it is responsible for the entire transaction, including the purchase of grain from the Board and the delivery of the grain to the customer at the export position or the final point of destination. The customer's preference is a key consideration in deciding upon the kind of sales arrangement.

The ability to deliver the kinds, grades and quantities of grain needed by customers is essential to the Wheat Board's marketing program. This is done in two stages. The first stage involves the delivery of grain by the producer from his farm to the local country elevator. The flow of grain from farms to country elevators is regulated under a delivery quota system which enables the Wheat Board to call for the delivery of the kind and grade of grain required to meet market commitments and, at the same time, allocate delivery opportunities equitably among all grain producers. The second stage involves the movement of grain from country elevators to large terminal positions in Eastern Canada, at Thunder Bay, at Churchill and on the West Coast. The transportation of grain to terminals on the West Coast, at Thunder Bay and at Churchill is carried out by the railways under maximum tariffs established under the terms of the National Transportation Act. The forwarding of grain from Thunder Bay to eastern positions is done largely by lake vessels under freight rates negotiated by the Wheat Board and private shippers with lake vessel operators.

Extensive planning and a high degree of co-ordination within the grain handling and transportation industry are required to carry out the complex task of moving grain from country elevators to forward positions. The Wheat Board, which co-ordinates the entire movement, programs rail shipments from country elevators to terminals on a weekly basis in accordance with sales requirements.

The maximum charges for the handling and storing of grain in country elevators and terminals are established by the Canadian Grain Commission. The charges paid at country elevators are the subject of a handling agreement negotiated between the Wheat Board and the country elevator companies.

Oats and barley sold by the Wheat Board for use in Canada are marketed either on a straight cash basis at prices quoted daily by the Board or on the basis of exchange of futures concluded through the facilities of the Winnipeg Grain Exchange. The Board controls the movement of coarse grains to Thunder Bay but the private trade is responsible for the movement of oats and barley from Thunder Bay or Vancouver positions.

The producer receives payment for his wheat, oats and barley in two stages. An initial payment price is established prior to the start of a crop year by Order in Council. The initial payment price less the cost of handling grain at the local elevator and the transportation costs to Thunder Bay or Vancouver is the initial price received by the producer. This price is a guaranteed floor price in that if the Wheat Board, in selling the grain, does not realize this price and the necessary marketing costs, the deficit is borne by the Federal Treasury. In the case of western Canadian wheat sold for domestic human consumption, the Federal Government has established a minimum selling price of \$1.95½ per bu. based on No. 1 C.W. Red Spring wheat in store at Thunder Bay. With very few exceptions, the wheat, oats and barley pool accounts operated by the Board on behalf of producers have shown a profit.

After the end of the crop year when the Board has sold all the grain or otherwise disposed of it in accordance with the Canadian Wheat Board Act, the Board, if authorized by Order in Council, makes a final payment to producers.

Under the Prairie Grain Advance Payments Act, administered by the Board, producers may receive, through their elevator agents, cash advances on farm-stored grain in accordance with a prescribed formula. The purpose of this legislation is to make cash available to producers pending delivery of their grain under delivery quotas established by the Board. Cash advances are interest-free to producers.

Western Canadian producers receive the price for their grain that the Wheat Board receives, less its operating costs including carrying charge, and the general level of prices received by the Board is determined by competitive conditions in world markets. Under provisions of the Temporary Wheat Reserves Act, the Minister of Finance, out of the Consolidated Revenue Fund, pays to the Wheat Board the carrying charges on wheat in commercial storage at the end of the crop year in excess of 178,000,000 bu.

### **The Canadian Grains Institute**

The Canadian Grains Institute was established jointly, in 1971, by the Canadian Wheat Board and the Canadian Grain Commission in co-operation with the Federal Government and is located in Winnipeg. It represents a further initiative by these agencies and the Government in the area of market development for grains and oilseeds and their products. The Institute will place emphasis on courses dealing with practical managerial, institutional, economic and commercial aspects of the Canadian grains industry. As an institutional facility, it will provide for foreign and Canadian industry executives, technical personnel, current and prospective buyers and users of Canadian products, and others likely to influence outlets for them, the opportunity to acquire training and first-hand knowledge of all facets of the industry, including production, marketing, distribution and processing.

In addition, the Institute will offer courses demonstrating the technology of milling, baking, pasta manufacturing, feed mill operations, oilseed crushing and utilization, malting, brewing and distilling. The entire program is designed to contribute to the maintenance and enlargement of markets at home and abroad for Canadian grains, oilseeds and their products.

### **The Canada Grains Council**

At the Prime Minister's suggestion, the Canada Grains Council was established in 1969 primarily to improve co-ordination within the industry and to assist in reaching consensus within the industry on recommendations to government. The administrative costs of the Council are shared by the Government and the industry members. Membership is "open to all non-governmental organizations and associations whose members are directly engaged in the production, handling, transportation or marketing of grain and grain products". The Council now (February 1972) has 30 members who meet semi-annually; its Board of Directors meets about 10 times a year. The Council is serviced by a small, but very efficient, secretariat.

In its three years of operation, the Council has demonstrated the capacity of the industry to work together on matters of mutual interest. It has already made several recommendations to government on issues either referred to it by government or initiated by the Council itself.

### **Subsection 2.—Controls Over Farm Products Other Than Grain\***

The Government of Canada and provincial governments have, through legislation and in other ways, given marketing aids such as those related to research, education, information, inspection, grading and many other service measures of this type, designed to assist in making adjustments in marketing within agriculture and between agriculture and the remainder of the economy. Closely related is regulatory action designed to protect the consumer.

Producers have been concerned about another type of market control, namely that which will give either their organizations or a government agency influence over the price received. In a highly specialized commercial agriculture such as Canada now has, the producer is dependent on the price of his product for his livelihood. Canadian farmers have long attempted to obtain some measure of market control through voluntary organizations, mainly marketing co-operatives. All provinces have made provision for the incorporation of such co-operatives and most, if not all, have provided other assistance to them. In the federal field, the Agricultural Products Co-operative Marketing Act provides for assistance to groups of producers who may wish to market on a co-operative basis.

Other legislation provides for legal control over the marketing of agricultural products, either by a producer board or a government agency. Legislation of this type includes that pertaining to milk control boards, to producer marketing boards and to industry marketing commissions. Measures pertaining to grain marketing have been reviewed in Subsection 1, pp. 1021-1028, and the Agricultural Stabilization Act, which provides price support for certain key products is discussed in the Agriculture Chapter, pp. 536-537.

**Product Controls.**—The federal and provincial departments of agriculture co-operate in establishing and enforcing grades of quality standards for various foods. Some control over size and type of containers used for distribution of agricultural products is exercised by the Canada Department of Agriculture, and the Department of Consumer and Corporate Affairs enforces regulations pertaining to weights and measures (see p. 1040).

Controls related to health and sanitation in food handling are developed and enforced at all three levels of government—municipal, provincial and federal. Examples of provincial and municipal action include laws pertaining to the pasteurization of milk, inspection of slaughter-houses and sanitary standards in restaurants. At the federal level, inspection by the Health of Animals Branch of the Department of Agriculture of all meat carcasses that enter into interprovincial trade is required. The Food and Drug Directorate of the Department of National Health and Welfare has wide control over the composition of foods and over advertising of foods and drugs.

\* Prepared in the Economics Branch, Canada Department of Agriculture, Ottawa.



**Marketing Controls.**—*The Agricultural Products Co-operative Marketing Act.*—

In the late 1930s, the Federal Government decided to assist orderly marketing by encouraging the establishment of pools which would give to the producer the maximum sales return for his product, less a maximum margin for handling expenses agreed upon in advance. Thus, the Agricultural Products Co-operative Marketing Act and the Wheat Co-operative Marketing Act were passed in 1939. The latter was used in one year only but the Agricultural Products Co-operative Marketing Act (RSC 1970, c. A-6), which covers the marketing of all agricultural products except wheat produced in the Canadian Wheat Board area, has served agricultural producers continuously since 1939.

The purpose of this Act is to aid farmers in pooling the returns from sale of their products by guaranteeing initial payments and thus assisting in the orderly marketing of the product. The Government may undertake to guarantee a certain minimum initial payment to the producer at the time of delivery of the product, including a margin for handling; sales returns are made to the producer on a co-operative plan. The guaranteed initial payment may be up to a maximum of 80 p.c. of the average price paid to producers for the previous three years, the exact percentage to be recommended by the Minister of Agriculture who enters into an agreement with the selling agency for the product. During 1969, agreements were made for the marketing of apples for processing in Quebec and beans in Ontario.

*Milk-Control Legislation.*—Most of the provinces enacted milk-control legislation prior to 1940. Most provinces finance these milk-control agencies partly from public funds and partly through the collection of licence fees and assessments from those engaged in the fluid milk industry. Milk-control agencies have the authority to license those engaged in the fluid milk industry and can revoke licences for failure to conform with the orders of the milk-control board.

In all provinces with such boards, the milk-control board or similar agency sets the minimum price which distributors in specified markets may pay producers for Class I milk, that is, milk actually sold for fresh fluid consumption. In British Columbia, a formula is used as a guide in determining minimum prices to producers. Most provinces set either minimum or maximum wholesale and retail prices for fluid milk. Quebec sets a minimum and maximum price range. Saskatchewan sets minimum prices applicable to all retail milk sales and maximum prices applicable to milk sales from retail wagons, as well as a minimum-maximum price range at the wholesale level. Minimum prices are in effect in Alberta, Nova Scotia and New Brunswick. Maximum prices are set in Manitoba and no control is exercised over milk prices at the wholesale and retail levels in Ontario and British Columbia. In these three provinces some degree of price competition has developed between store sales and home delivery.

The powers given to or requirements made by milk-control boards include: (1) authority to inquire into all matters pertaining to the fluid milk industry, to define market areas, to arbitrate disputes, to examine the books and records of those engaged in the industry, to issue and revoke licences, and to establish a price for milk; and (2) authority to require a bond from distributors, periodic reports from distributors, payments to be made to producers by a certain date each month, distributors to give statements to suppliers, distributors to give notice before ceasing to accept milk from any producer, and producers to give notice before ceasing to deliver milk to any distributor.

The Ontario Milk Marketing Board, a producer-controlled agency, was officially established by the Milk Commission of Ontario on Nov. 1, 1965. The Board was delegated certain powers by the Commission in respect to the production, marketing and transportation of milk and has the power to set the price that milk processors must pay to their suppliers.

*The Canadian Dairy Commission.\**—The Canadian Dairy Commission was established by federal legislation and began operations on Apr. 1, 1967. This was a new departure in the area of agricultural marketing because it was the first national marketing board to be

\* See also p. 537.



established since the Canadian Wheat Board was created in 1935. The Commission has the power to purchase any dairy product and package, process, store, ship, insure, import, export, or sell or otherwise dispose of any dairy product purchased by it. The Commission may also make payments to producers of milk and cream for the purpose of stabilizing the price of these products.

The objects of the Commission are to provide producers of milk and cream with the opportunity of obtaining a fair return for their labour and investment, and to provide consumers with a continuous and adequate supply of high-quality dairy products. The Federal Government, through the Canadian Dairy Commission, supports the income of manufacturing milk and cream producers by means of "offer-to-purchase" programs for certain dairy products and direct subsidy payments.

In the 1967-68 dairy support year, the Federal Government introduced a global subsidy eligibility quota which was directly related to the domestic consumption of milk marketed by manufacturing milk and cream shippers. Individual quotas were allocated on the basis of the shipper's deliveries during the previous dairy support year, with certain exceptions. The quota policy, with slight modifications, continues.

*Producer Marketing Boards.*—During the 1930s strong support developed for legislation whereby agricultural producers could exercise legal authority under certain conditions to control the marketing of their produce. The Natural Products Marketing Act of 1934 attempted to provide this power at the federal level but proved *ultra vires*. The Natural Products Marketing (British Columbia) Act, 1936 was *intra vires* of provincial government powers and provided the model from which marketing board legislation has evolved in all 10 provinces.

While marketing board legislation has been revised from time to time on the basis of experience and there are variations in detail from province to province, the same basic powers are given to producers in all provinces. These powers include authority for a duly constituted producer board to control the marketing of 100 p.c. of a specified commodity produced in a designated area. A producer board, in at least some provinces, may set production quotas for each farmer. One producer board may control the marketing of several related commodities and the designated area may be either the whole or part of a province. A producer vote is usually required to establish a producer marketing board whose powers are delegated either by a provincial marketing board, which has certain supervisory authority, or by the Lieutenant-Governor in Council.

The powers of a producer marketing board provided by provincial legislation are necessarily limited to intraprovincial trade. Under the Agricultural Products Marketing Act (RSC 1970, c. A-7), the Federal Government may delegate to a marketing board with respect to interprovincial and export trade similar powers to those obtained with respect to intraprovincial trade under provincial authority. This Act also gives the Governor in Council the right to authorize a provincial marketing board to impose and collect levies from persons engaged in the production and marketing of commodities controlled by it for the purposes of the board, the creation of reserves and the equalization of returns.

In 1970, there were 94 producer marketing boards operating in Canada, including the Canadian Wheat Board which was established at the federal level. All of the provinces had one or more boards established under their jurisdictions; Quebec had 33 and Ontario 22. It is estimated that approximately 47 p.c. of the 1970 farm cash income was received from sales made under the control of producer marketing boards. Commodities sold through the boards included grains, hogs, milk, fruits, potatoes and other vegetables, tobacco, poultry, wool, soybeans, honey, maple products and pulpwood. At the end of 1970, 57 of the provincial boards had received extension of powers for purposes of interprovincial and export trade from the Federal Government, and five boards had received authority to collect levies from producers on commodities marketed through them.

## Section 2.—The Department of Consumer and Corporate Affairs

Legislation that received Royal Assent on Dec. 21, 1967 (RSC 1970, c. C-27), transformed the former Department of the Registrar General of Canada into the new Department of Consumer and Corporate Affairs. The duties, powers and functions of the Minister extend to and include all matters over which the Parliament of Canada has jurisdiction, not by law assigned to any other department, branch or agency of the Government of Canada, relating to consumer affairs; corporations and corporate securities; combines, mergers, monopolies and restraint of trade; bankruptcy and insolvency; and patents, copyrights and trade marks.

The Department has three main divisions—the Bureau of Consumer Affairs, the Bureau of Corporate Affairs, and the Office of the Director of Investigation and Research under the Combines Investigation Act. The Bureau of Consumer Affairs co-ordinates government activities in the field of consumer affairs. Branches within the Bureau include Consumer Services, Consumer Research, Operations and Standards. Regional offices have been established at Halifax, Montreal, Toronto, Winnipeg and Vancouver. Branches of the Bureau of Corporate Affairs include Bankruptcy (with regional offices in Montreal, Toronto and Vancouver), Corporations, Trade Marks, the Patent and Copyright Office, the Registration Division, and the Corporate Research Branch. Branches under the direction of the Office of the Director of Investigation and Research under the Combines Investigation Act include the Combination Branch, the Merger and Monopoly Branch, the Trade Practices Branch and the Research Branch. The Director also has special investigators in each of the five regional offices whose job is investigation of cases of misleading advertising. The Restrictive Trade Practice Commission (Combines Investigation Act) is also domiciled in the Department and reports directly to the Minister.

Branches which serve the Department as a whole are Financial and Administrative Services, Personnel and Information and Public Relations.

### Combines, Mergers, Monopolies and Restraint of Trade

The purpose of Canadian anti-combines legislation is to assist in maintaining free and open competition as a prime stimulus to the achievement of maximum production, distribution and employment in a system of free enterprise. To this end, the legislation seeks to eliminate certain practices in restraint of trade that serve to prevent the nation's economic resources from being most effectively used for the advantage of all citizens.

By amendments that came into force on Aug. 10, 1960, all the provisions of the anti-combines legislation which previously had been divided between the Combines Investigation Act (now RSC 1970, c. C-23) and the Criminal Code were amended and consolidated in the Act. The substantive provisions now are contained in Sects. 2, 32, 33, 34, 35, 36 and 38 of the Combines Investigation Act. The Act was enacted in 1923 and was amended extensively in 1935, 1937, 1946, 1949, 1951 and 1952 as well as in 1960. On July 31, 1969, Sec. 306 of the Criminal Code prohibiting false or misleading advertisements was transferred to the Act (now Sect. 37).

Sect. 32, generally speaking, forbids in Subsect. (1) combinations that prevent or lessen "unduly" competition in the production, manufacture, purchase, barter, sale, storage, rental, transportation or supply of an article of trade or commerce or in the price of insurance. Subsect. (1) derives from Sect. 411 of the Criminal Code which was enacted originally in 1889. Although Subsect. (2) provides that no person shall be convicted for participation in an arrangement relating only to such matters as the exchange of statistics or the defining of product standards, etc., Subsect. (3) provides that Subsect. (2) does not apply if the arrangement has lessened or is likely to lessen competition unduly in respect of prices, quantity or quality of production, markets or customers or channels of distribution, or if the arrangement "has restricted or is likely to restrict any person from entering into or expanding a business in a trade or industry". Subsect. (4) provides that, subject to Subsect. (5), no person shall be convicted for participation in an arrangement which

relates only to the export trade. Subsect. (5) provides that Subsect. (4) does not apply if the arrangement has had or is likely to have harmful effects on the volume of export trade or on the businesses of Canadian competitors or on domestic consumers.

Sects. 2 and 33 make it an offence to participate in a merger that has or is likely to have the effect of lessening competition to the detriment or against the interest of the public. These Sections also make it an offence to participate in a monopoly that has been operated or is likely to be operated to the detriment or against the interest of the public.

Sect. 34 deals with what are commonly called "price discrimination" and "predatory price cutting". It provides that a supplier may not make a practice of discriminating among those of his trade customers who come into competition with one another by giving one a preferred price which is not available to another if the second is willing to buy in like quantities and qualities as the first; it also forbids a supplier from selling at prices lower in one locality than in another, or unreasonably low anywhere, if the effect or tendency of such policy is to lessen competition substantially or eliminate competitors or the policy is designed to have such effect.

Sect. 35 provides that where a supplier grants advertising or display allowances to competing trade customers he must grant them in proportion to the purchases of such customers; any service he exacts in return must be such that his different types of customers are able to perform; and if such customers are required to incur expenses to earn such allowances, such expenses also must be proportionate to their purchases.

Sect. 36 makes it an offence for any person, for the purpose of promoting the sale or use of an article, to make any materially misleading representation to the public concerning the price at which such or like articles have been, will be or are ordinarily sold.

Sect. 37 makes it an offence to publish an advertisement containing a statement that purports to be a statement of fact but is untrue, deceptive or misleading or is intentionally so worded or arranged that it is deceptive or misleading if the advertisement is published to promote a business or commercial interest or the sale or disposal of property.

Sect. 38 prohibits a supplier of goods from prescribing the prices at which they are to be resold by wholesalers or retailers or from cutting off supplies to a merchant because of the merchant's failure or refusal to abide by such prices, i.e., the practice of "resale price maintenance". The Section also provides that it shall not be inferred that a person practised resale price maintenance simply because he refused or counselled the refusal of supplies to a merchant if there were reasonable cause to believe and the supplier did believe that the merchant was making a practice of using articles of such supplier as "loss-leaders" or as bait advertising or was making a practice of engaging in misleading advertising in respect of such articles or of not providing services that purchasers of such articles might reasonably expect.

The Director of Investigation and Research is responsible for investigating combines and other restrictive practices, and the Restrictive Trade Practices Commission is responsible for appraising the evidence submitted to it by the Director and the parties under investigation, and for making a report to the Minister of Consumer and Corporate Affairs. When there are reasonable grounds for believing that a forbidden practice is engaged in, the Director may obtain from the Commission authorization to examine witnesses, search premises, or require written returns. After examining all the information available, if the Director believes that it proves the existence of a forbidden practice, he submits a statement of the evidence to the Commission and to the parties believed to be responsible for the practice. The Commission then sets a time and place at which it hears argument on behalf of the Director in support of his statement, and hears argument and receives evidence on behalf of any persons against whom allegations have been made in the statement. Following this hearing, the Commission prepares and submits a report to the Minister of Consumer and Corporate Affairs, ordinarily required to be published within thirty days.



Under the provisions of the Act, general inquiries may be made into restraints of trade which, although not forbidden or punishable, may affect the public interest. The courts, including the Federal Court of Canada,\* in addition to imposing punishment for a contravention of the legislation, may make an order restraining persons from embarking on, continuing or repeating a contravention or directing the dissolution of a merger or monopoly as the case may be. Application also may be made to the courts for such an order in lieu of prosecuting and convicting for a contravention of the legislation. Prosecutions for offences against the substantive provisions of the legislation (other than Sect. 36 which is punishable only on summary conviction) may be taken either in the provincial courts or with the consent of the accused in the Federal Court of Canada.

In July 1969, following a reference by the Government, the Economic Council of Canada submitted its Interim Report on Competition Policy which recommended substantial changes in the Combines Investigation Act. On June 29, 1971, the Minister of Consumer and Corporate Affairs introduced in Parliament Bill C-256 to enact the Competition Act to replace the Combines Investigation Act. The Bill embodies many of the basic suggestions made in the Report of the Economic Council.

In the period Jan. 1, 1968 to June 30, 1971, the following reports of inquiries under the legislation were published:—

- (1) Resale Prices of Corning Glassware.
- (2) Dairy Products, Montreal.
- (3) Resilient Flooring, Toronto.
- (4) Prices of Gasoline, Sudbury.
- (5) Road Paving in Ontario.
- (6) Business Forms.
- (7) Business Forms, Quebec.
- (8) The Metal Culvert Industry, Ontario and Quebec.
- (9) Electric Large Lamps.

These reports and copies of the annual reports under the Act may be obtained from Information Canada or the office of the Director of Investigation and Research, Combines Investigation Act, Department of Consumer and Corporate Affairs, Ottawa.

## Patents

Patents for inventions are issued under the provisions of the Patent Act (RSC 1970, c. P-4) and Patent Regulations have been proclaimed to carry into effect the objects of the Act. Applications for patents for inventions and requests for information about such patents should be addressed to the Commissioner of Patents, Ottawa, K1A 0E1.

Patents granted in the year ended Mar. 31, 1971 numbered 29,193. Of these, 4.8 p.c. resulted from inventions made by residents of Canada, 6.8 p.c. by residents of the United Kingdom and 64.0 p.c. by residents of the United States.

Printed copies of Canadian Patents issued from Jan. 1, 1948 to date are available at \$1 each. The *Patent Office Record*, issued weekly, contains a list of patents issued during the week covered, information about services in the Patent Office and information of concern to the patent profession.

Canadian and foreign patents may be consulted at the Patent Office Library. British patents and abridged specifications thereof from 1617 to date and United States patents from 1845 to date are available, as well as many patents, indexes, journals and reports from Australia, India, Ireland, New Zealand, Pakistan, South Africa, Austria, Belgium, Colombia, Czechoslovakia, Egypt, France, Germany, Italy, Japan, Mexico, the Netherlands, Norway, Sweden, Switzerland and Yugoslavia. A list of the foreign patents available is published in the Patent Office Record.

\* Formerly the Exchequer Court of Canada.



**1.—Patents Applied for, Granted, etc., Years Ended Mar. 31, 1967-71**

Item		1967	1968	1969	1970	1971
Applications for patents.....	No.	29,618	29,586	31,091	31,360	30,510
Patents granted.....	"	24,432	25,836	27,703	28,981	29,193
Granted to Canadians.....	"	1,827	1,591	1,433	1,461	1,987
Caveats granted.....	"	258	304	303	229	160
Petitions under Sects. 41, 67.....	"	3	10	11	64	40
Assignments.....	"	27,864	29,614	28,006	28,253	29,746
Fees.....	\$	3,550,685	4,345,015	4,491,408	5,195,126	5,941,106

In March 1971, the Economic Council of Canada completed a Report on Intellectual and Industrial Property, which made recommendations for amendments to the legislation. Copies of the report may be purchased from Information Canada, Ottawa.

**Copyrights, Industrial Designs and Timber Marks**

Copyright protection is governed by the Copyright Act (RSC 1970, c. C-30) in force since 1924. Protection is automatic without any formality, although a system of voluntary registration is provided. Application for registration should be addressed to the Commissioner of Patents, Ottawa.

The Act sets out the qualifications for a copyright and its duration: "Copyrights shall subsist in Canada . . . in every original literary, dramatic, musical and artistic work, if the author was, at the date of the making of the work, a British subject, a citizen or subject of a foreign country which has adhered to the Berne Convention and the additional Protocol . . . or resident within Her Majesty's Dominions. The term for which the copyright shall subsist shall, except as otherwise expressly provided by this Act, be the life of the author and a period of fifty years after his death."

Canada belongs to the Universal Copyright Convention. This means that the works of Canadian authors are protected in the United States without formality of compulsory registration or the obligation of printing in the United States, provided that, from the first publication, the work bears in a prominent place the following identification: ©, followed by the name of the proprietor and the year of publication.

Copyright protection is extended to records, perforated rolls, cinematographic films, and other contrivances by means of which a work may be mechanically performed. The intention of the Act is to enable Canadian authors to obtain full copyright protection in Canada, in all parts of the Commonwealth, in foreign countries of the Copyright Union and in the United States. Protection of industrial designs and of timber marks is afforded under the Industrial Design and Union Label Act and the Timber Marking Act. Registers of such designs and marks are kept by the Copyright Branch of the Patent Office.

**2.—Copyrights, Industrial Designs and Timber Marks Registered, Years Ended Mar. 31, 1967-71**

Item		1967	1968	1969	1970	1971
Copyrights registered.....	No.	7,575	7,875	8,067	8,611	9,315
Industrial designs registered.....	"	1,088	1,197	902	1,026	1,405
Timber marks registered.....	"	—	1	1	—	1
Assignments registered.....	"	1,948	2,288	2,310	2,032	2,344
Fees received, net.....	\$	37,212	39,737	38,768	43,994	45,936

**Trade Marks**

The Trade Marks Office, a Branch of the Consumer and Corporate Affairs Department, administers the Trade Marks Act (RSC 1970, c. T-10) which covers all legislation concerning the registration and use of trade marks and supersedes from July 1, 1954, former legislation enacted under the Unfair Competition Act, the Union Label Act and the Shop Cards Registration Act. Correspondence relating to an application for registration of a trade mark should be addressed to the Registrar of Trade Marks, Ottawa.

Applications are advertised for opposition purposes in the *Trade Marks Journal*, a weekly publication that also gives particulars of every registration of a trade mark and every registration of a registered user. The required fee payable on application for registration of a trade mark is \$35, for advertisement of an application \$25 and for registration of a person as a registered user of a trade mark \$35.

### 3.—Trade Marks Registered, Years Ended Mar. 31, 1967-71

Item		1967	1968	1969	1970	1971
Trade marks registered.....	No.	5,704	6,462	5,976	6,646	6,897
Transfers registered.....	"	4,155	4,917	5,449	4,860	5,772
Trade mark registrations renewed.....	"	2,914	3,356	3,504	2,432	4,013
Copies prepared.....	"	32,610	44,818	56,631	65,875	90,629
Fees received, net.....	\$	429,658	476,138	671,743	869,319	890,376

## Section 3.—Control and Sale of Alcoholic Beverages

The retail sale of alcoholic beverages in Canada is controlled by provincial and territorial government liquor control authorities. Alcoholic beverages are sold directly by most of these liquor control authorities to the consumer or to licensees for resale. However, in some provinces beer and wine are sold directly by breweries and wineries to consumers or to licensees for resale. During the year ended Mar. 31, 1970, provincial government liquor authorities operated 1,233 retail stores and had 217 agencies in smaller centres of population.

Government revenue specifically related to alcoholic beverages and details of sales by value and volume for each province are given below. Statistics Canada report, *The Control and Sale of Alcoholic Beverages in Canada* (Catalogue No. 63-202) shows further detail as well as volume figures of production and warehousing transactions, the value and volume of imports and exports and the assets and liabilities of provincial liquor commissions.

### 4.—Revenue of Provincial and Territorial Governments Derived Specifically from the Control and Sale of Alcoholic Beverages, Years Ended Mar. 31, 1969 and 1970

NOTE.—Figures include revenue collected directly by the provincial and territorial governments as well as revenue of the liquor authorities, but exclude revenue resulting from general retail sales taxation with the exception of the 1969 figures for Quebec, which include \$10,140,000 in sales tax collected at outlets.

Province or Territory	1969			1970		
	Net Income from Sales <sup>1</sup>	Sales Tax, Licences and Permits, and Other	Total	Net Income from Sales <sup>1</sup>	Sales Tax, Licences and Permits, and Other	Total
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland.....	6,296	5,510	11,806	6,827	6,089	12,916
Prince Edward Island.....	2,582	834	3,416	2,776	889	3,665
Nova Scotia.....	19,737	303	20,040	23,626	309	23,935
New Brunswick.....	16,999	634	17,633	16,998	664	17,662
Quebec.....	43,268	32,273	75,541	78,348	32,939	111,287
Ontario.....	153,641	40,372	194,013	137,099	43,305	180,404
Manitoba.....	22,071	3,718	25,789	23,936	4,005	27,941
Saskatchewan.....	25,046	708	25,754	25,819	657	26,476
Alberta.....	39,930	1,582	41,512	45,535	1,837	47,372
British Columbia.....	55,360	820	56,180	60,778	884	61,662
Yukon Territory.....	1,383	283	1,666	1,503	305	1,808
Northwest Territories.....	1,827	81	1,908	2,059	89	2,148
<b>Canada.....</b>	<b>358,140</b>	<b>87,118</b>	<b>475,258</b>	<b>425,304</b>	<b>91,972</b>	<b>517,276</b>

<sup>1</sup> After provision for depreciation on fixed assets and capital expenditure met out of operating income; includes commission on general sales tax collections.

Revenue of the Federal Government derived specifically from the control and taxation of alcoholic beverages comprising excise duties, excise taxes, import duties and certain fees and licences in that connection is shown in Table 5.

### 5.—Revenue of the Federal Government Derived Specifically from the Control and Taxation of Alcoholic Beverages, Years Ended Mar. 31, 1966-70

NOTE.—Figures exclude revenue from the general sales tax which is not available by commodities.

Nature of Levy	1966	1967	1968	1969	1970
	\$'000	\$'000	\$'000	\$'000	\$'000
<b>On Spirits.....</b>	<b>193,159</b>	<b>199,024</b>	<b>223,015</b>	<b>227,055</b>	<b>244,290</b>
Excise duty.....	156,942	158,157	180,401	185,367	194,733
Licences.....	9	9	10	10	10
Import duty.....	36,208	40,858	42,607	41,678	49,547
<b>On Beer.....</b>	<b>108,234</b>	<b>113,609</b>	<b>120,902</b>	<b>135,581</b>	<b>139,978</b>
Excise duty.....	107,917	113,254	120,239	134,970	139,353
Licences.....	3	3	3	3	3
Import duty.....	314	352	660	608	622
<b>On Wine.....</b>	<b>7,203</b>	<b>8,231</b>	<b>9,081</b>	<b>9,166</b>	<b>11,992</b>
Excise taxes.....	4,402	4,752	5,327	5,860	6,991
Import duty.....	2,801	3,479	3,754	3,306	5,001
<b>Totals<sup>1</sup>.....</b>	<b>308,596</b>	<b>320,864</b>	<b>353,001</b>	<b>371,802</b>	<b>396,260</b>

<sup>1</sup> Drawbacks and refunds of duties and taxes have not been deducted.

Table 6 shows the value of sales of alcoholic beverages in 1968-70 but it should be noted that these figures do not always represent the final retail selling price of alcoholic beverages to the consumer because, when sold to licensees, only the selling price to licensees is known.

### 6.—Value of Sales of Alcoholic Beverages, Years Ended Mar. 31, 1968-70

Province or Territory	Spirits			Wines		
	1968	1969	1970	1968	1969	1970
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland.....	12,362	13,239	13,956	730	834	964
Prince Edward Island.....	4,491	4,853	5,040	436	479	541
Nova Scotia.....	25,788	29,459	31,271	3,414	3,876	4,624
New Brunswick.....	18,373	24,913	20,121	2,906	3,520	3,790
Quebec.....	160,220	110,853	162,324	35,056	26,792	42,012
Ontario.....	291,653	359,442	324,421	41,342	54,407	55,336
Manitoba.....	34,622	37,577	40,632	4,908	5,583	6,380
Saskatchewan.....	32,431	34,441	34,650	4,813	5,288	5,593
Alberta.....	60,675	66,640	72,766	8,778	10,249	12,543
British Columbia.....	90,551	99,656	107,697	14,815	18,227	22,179
Yukon Territory.....	1,527	1,800	1,925	265	292	326
Northwest Territories.....	1,675	1,960	2,398	286	324	392
<b>Canada.....</b>	<b>734,368</b>	<b>784,833</b>	<b>817,201</b>	<b>117,749</b>	<b>129,871</b>	<b>154,680</b>
	Beer			Totals		
	1968	1969	1970	1968	1969	1970
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland.....	18,667	18,936	20,933	31,759	33,009	35,853
Prince Edward Island.....	2,854	3,254	3,505	7,781	8,586	9,086
Nova Scotia.....	22,195	25,316	27,633	51,397	58,651	63,528
New Brunswick.....	16,941	19,346	20,249	38,220	47,779	44,160
Quebec.....	158,173	174,339	185,693	353,449	311,984	390,029
Ontario.....	226,764	240,651	267,693	559,759	654,500	647,450
Manitoba.....	34,130	35,680	38,015	73,660	78,840	85,027
Saskatchewan.....	31,676	32,096	32,770	68,920	71,825	73,013
Alberta.....	46,753	48,900	55,179	116,206	125,789	140,488
British Columbia.....	63,720	67,105	76,002	169,086	184,988	205,878
Yukon Territory.....	1,298	1,634	1,784	3,090	3,726	4,035
Northwest Territories.....	1,502	1,698	1,993	3,463	3,982	4,783
<b>Canada.....</b>	<b>624,673</b>	<b>668,955</b>	<b>731,419</b>	<b>1,476,790</b>	<b>1,583,659</b>	<b>1,703,330</b>

<sup>1</sup> Includes the 8-p.c. sales tax collected at outlets, amounting to \$10,140,000.

Volume of sales, as shown in Table 7, is a more realistic indicator of trends in consumption although, as a measure of personal consumption by Canadians, it is subject to the same limitations as value sales in respect of purchases by non-residents.

**7.—Volume of Sales of Alcoholic Beverages, Years Ended Mar. 31, 1968-70**

Province or Territory	Spirits			Wines		
	1968	1969	1970	1968	1969	1970
	'000 gal.	'000 gal.	'000 gal.	'000 gal.	'000 gal.	'000 gal.
Newfoundland.....	364	347	369	58	59	66
Prince Edward Island.....	130	134	137	49	53	56
Nova Scotia.....	819	872	849	420	458	482
New Brunswick.....	538	701	510	341	398	409
Quebec.....	4,892	2,969	4,634	3,789	2,599	4,313
Ontario.....	9,383	10,836	9,779	4,652	5,861	5,857
Manitoba.....	1,046	1,078	1,170	611	698	794
Saskatchewan.....	986	968	991	633	648	682
Alberta.....	1,724	1,811	1,979	1,138	1,314	1,613
British Columbia.....	2,987	3,110	3,379	1,998	2,349	2,784
Yukon Territory.....	40	45	49	23	25	29
Northwest Territories.....	37	45	53	22	25	30
<b>Canada.....</b>	<b>22,946</b>	<b>22,916</b>	<b>23,899</b>	<b>13,714</b>	<b>14,487</b>	<b>17,115</b>
	Beer			Totals		
	1968	1969	1970	1968	1969	1970
	'000 gal.	'000 gal.	'000 gal.	'000 gal.	'000 gal.	'000 gal.
Newfoundland.....	4,700	4,494	4,969	5,122	4,900	5,404
Prince Edward Island.....	781	967	1,039	960	1,154	1,232
Nova Scotia.....	7,973	8,653	8,790	9,212	9,983	10,121
New Brunswick.....	5,884	6,237	5,950	6,763	7,336	6,869
Quebec.....	94,580	99,150	98,667	103,241	104,718	107,614
Ontario.....	113,476	110,658	123,175	127,511	127,355	138,811
Manitoba.....	13,920	14,151	14,772	15,577	15,927	16,736
Saskatchewan.....	12,333	11,847	11,772	13,952	13,463	13,445
Alberta.....	21,478	22,255	23,923	24,340	25,380	27,515
British Columbia.....	29,660	29,936	33,306	34,645	35,395	39,469
Yukon Territory.....	321	394	441	384	464	519
Northwest Territories.....	305	355	404	364	425	487
<b>Canada.....</b>	<b>305,411</b>	<b>309,097</b>	<b>327,208</b>	<b>342,071</b>	<b>346,500</b>	<b>368,222</b>

## Section 4.—Miscellaneous Aids or Controls

### The National Energy Board

The National Energy Board was established under authority of the National Energy Board Act, 1959 (RSC 1970, c. N-6) for the broad purpose of assuring the best use of energy resources in Canada. The Board is responsible for adjudicating upon applications for exportation and importation of natural gas, for construction and operation of international and interprovincial oil and gas pipelines, for exportation of electric power, for construction and operation of international power lines for importation and exportation of electric power, for importation of liquefied natural gas and motor gasoline and gasoline blending components, and for the regulation of the construction of pipelines passing through municipal and private farm areas to minimize disruption of drainage systems. It is responsible for regulating the rates, tolls and tariffs of oil and gas pipelines under its jurisdiction to ensure that they are just and reasonable. The Board reports to Parliament through the Minister of Energy, Mines and Resources.

In addition to its regulatory responsibilities, the Board has an advisory role. In this capacity it is required to keep under review all matters relating to energy within the juris-



diction of the Parliament of Canada and to recommend to the Minister any measures that the Board considers necessary or advisable to undertake in the public interest to ensure proper use and development of energy and its sources.

The Board is also charged with the administration of the National Oil Policy which is intended to foster the development and utilization of indigenous Canadian oil resources. This objective involves some protection for products of indigenous crude oil in domestic markets, to which the Board's motor gasoline import licensing is related, and encouragement for the export of oil surplus to Canadian requirements.

The National Power Policy, announced in 1963, encourages the development of large-scale power sources at lowest possible cost; the distribution of the benefits thereof as widely as possible through interconnections between power systems within Canada; and the long-term export of large blocks of power where such exports will induce early development of Canadian power resources. This policy also encourages the export of various classes of power under suitable interconnection agreements to provide for mutual assistance in emergencies and for other economic benefits that can be derived by both parties through co-ordinated operation and development. In pursuance of these aims, the Board co-operates with other agencies in the consideration of interprovincial and international interconnections of electric power systems. In this context it is worthy to note that now almost all electrical utilities in Canada and the United States are interconnected with neighbouring systems and are operating as part of one vast power network.

In 1971, the Board convened its first public hearing under Part IV of the Act for the determination of just and reasonable tolls for a major gas pipeline company. It is anticipated that this hearing will be both lengthy and complex in nature, involving, as it does, many issues that have previously not been subject to the Board's purview.

Also in 1971, the Regulations pursuant to Part VI of the National Energy Board Act were amended to impose a mandatory condition on each licence issued by the Board for the exportation of gas. This condition requires that the price to be charged for such gas shall be subject to continuous review by the Board and where, in the Board's opinion, there has been a significant increase in prices for competing gas supplies or for alternative energy sources, the Governor in Council may, on the recommendation of the Board, order the establishment of a new price.

The Board conducts regular examinations of the accounts and records of gas and oil pipeline companies under its jurisdiction. Such examinations ensure conformity with the Board's Uniform Accounting Regulations and provide detailed financial information which is essential to administering the regulatory functions of the Board. The Board also conducts special studies of a financial nature and maintains close liaison with various sectors of the national and international financial communities.

The Board conducts continuing studies of energy matters in order to maintain a bank of current knowledge which is necessary for the Board to perform its regulatory and advisory functions. Energy supply and demand forecasts are a continuing function of the Board's work. Studies include both the Canadian and foreign markets since fuels and, to a more limited extent, electric power are traded internationally.

Seven members, appointed by the Governor in Council, constitute the Board. Each is appointed for a period of seven years or until the age of 70.

### **The Standards Council of Canada**

The Standards Council of Canada was established by Act of Parliament (SC 1969-70, c. 73), which received Royal Assent on Oct. 7, 1970. The Council will act as a national co-ordinating institution through which organizations concerned with voluntary standardization may co-operate in recognizing, establishing and improving standards in Canada and develop a broader and more energetic Canadian standards program to meet both national

and international responsibilities. Its structure is intentionally designed to make maximum use of those organizations already in existence and functioning efficiently. The aim is to broaden the range of activities and to co-ordinate them in order to obtain a more complete coverage of standards needs.

The objects of the Council are to foster and promote voluntary standardization in fields relating to the construction, manufacture, production, quality, performance and safety of buildings, structures, manufactured articles and products and other goods, including components thereof, not expressly provided for by law, as a means of advancing the national economy, benefiting the health, safety and welfare of the public, assisting and protecting consumers, facilitating domestic and international trade and furthering international co-operation in the field of standards. It will be responsible in the private sector for encouraging preparations for change to the metric system in a manner to achieve optimum benefits at minimum cost and will ensure that, in the process of rewriting standards to metric terms, there will be an opportunity to update the standards themselves where appropriate.

The Council will consist of not more than 57 members, headed by a president and a vice-president. The seats of the Council, other than the 16 assigned to government representatives (six federal and ten provincial), will be occupied by representatives of national organizations. Membership will be broadly representative of all levels of government (federal, provincial and municipal), primary and secondary industries, distributive and service industries, trade associations, labour unions, provincial associations, consumer associations and the academic community. Members employed in the Public Service of Canada hold office during pleasure. Other members are appointed for a term not exceeding three years. The day-to-day work is carried out by a permanent staff in Ottawa, headed by an executive director who is appointed by the Governor in Council.

### Trade Standards and Regulations

In its consumer program, the Department of Consumer and Corporate Affairs is responsible for the administration of broad legislation which affects the business community. Policies and programming are determined by the Standards Branch, and the necessary field supervision by the Operations Branch.

**Hazardous Products.**—General regulations issued under the Hazardous Products Act provide for the banning or the regulated sale of a variety of dangerous products which are toxic, flammable, explosive, or corrosive. These relate largely to household products. Toy Regulations are directed to eliminating dangerous toys.

**General Commodity Field.**—The National Trade Mark and True Labelling Act provides a framework for the development of National Standards and true labelling in order to prevent deception in labelling and advertising. The Garment Sizing Regulations were developed as a National Standard for the sizing of children's garments. The labelling provision has been used for regulation for fur garments, watch jewels, textiles, etc. Textiles are subject to special new requirements established under a Textile Labelling Act passed in 1970.

Control of marking of precious metal articles is maintained under the Precious Metals Marking Act. This Act will shortly be replaced by a revised statute passed by Parliament.

In the packaging and labelling field, a Packaging and Labelling Act has been passed by Parliament which, when proclaimed, will give uniformity to packaging practices in Canada, reduce packaging and advertising deception, and control proliferation.

**Food.**—In areas of health, grading, standards and composition, the Food and Drug Act, the Canadian Agricultural Products Standards Act and the Fish Inspection Act are generally applicable. The Consumer and Corporate Affairs Department is charged with

administration of the economic fraud aspects in distribution. This responsibility relates mainly to labelling and advertising in any segment of the news media.

**Advertising.**—Most legislation has particular requirements to ensure against misleading advertising. Notice should be taken of Sects. 36 and 37 of the Combines Investigation Act, which include general provisions against misleading advertising practices.

**Measurement.**—The Weights and Measures Act prescribes the legal standards of weight and measure for use in Canada; it also requires control of the type of all weighing and measuring devices used for commercial purposes and their periodic verification and surveillance directed toward the elimination of device-tampering and short-weight sales. A replacing Act has been passed by Parliament and will be proclaimed with the issue of new regulations. The fundamental objectives of existing legislation are unchanged. The new Act is an updating, and complements the proposed packaging and labelling legislation.

The Electricity Inspection Act and the Gas Inspection Act control the approval before sale and use of devices used for the sale of electricity and gas; they also provide a framework for continual in-use inspection.

### PART III.—BANKRUPTCIES AND COMMERCIAL FAILURES

Two series of figures are included in this Part which, although closely related as far as subject matter is concerned, cover different aspects of the field of bankruptcies and commercial failures. The first, under the heading of "Administration of Bankrupt Estates" is limited to the supervision, by the Superintendent of Bankruptcy, of the administration of bankrupt estates under the Bankruptcy Act (RSC 1970, c. B-3); it gives information on the amounts realized from the assets as established by debtors and indicates that values actually paid to creditors are invariably very much lower than such estimates alone would imply. It can therefore be assumed that this applies in even greater degree to the more extended fields covered in the second section under the heading of "Returns under the Bankruptcy and Winding-Up Act" which is compiled by Statistics Canada. This series is limited to bankruptcies and insolvencies made under federal legislation and includes business failures only.

**Administration of Bankrupt Estates.\***—The Bankruptcy Act was last revised in 1949 and amended in 1966. The amendments were instigated by exposures and suggestions of illegal and improper practices in connection with bankruptcy proceedings or administration. They do not constitute a complete revision of the Bankruptcy Act but were designed rather to provide, as an interim measure, remedies to the most urgent areas of complaints. They provide the Superintendent of Bankruptcy with direct and immediate authority in the field of investigation and inquiry, and tighten the procedures and requirements in a number of areas, such as that of proposals which an insolvent person may make to his creditors. In other words, these amendments were intended to provide remedies in situations where it had been shown by experience that abuses of the bankruptcy process are most likely to occur. The amendments also contain a new Part X entitled "The Orderly Payment of Debts" which may come into force in any province at the request of the provincial authorities concerned—in Alberta on Apr. 17, 1967, in Manitoba on June 1, 1967, in Saskatchewan on Apr. 1, 1969, in British Columbia on June 1, 1970, in Nova Scotia on July 1, 1970 and in Prince Edward Island in April 1971.

\* Revised by the Superintendent of Bankruptcy, Ottawa.

A report issued annually by the Superintendent of Bankruptcy gives statistics and comments on various activities in the field of bankruptcy, such as prosecution for offences, issue of licences for trustees in bankruptcy, number of estates reported and closed during the year, and costs of bankruptcy administration in Canada.

### 1.—Summary Statistics of Estates Closed during 1970 under the Bankruptcy Act

Province	BANKRUPT ESTATES <sup>1</sup>					
	Estates Closed	Assets as Estimated by Debtors	Unsecured Liabilities as Estimated by Debtors	Realization by Trustee	Costs of Administration	Costs as Percentage of Realization
	No.	\$'000	\$'000	\$'000	\$'000	p.c.
Newfoundland.....	5	267	184	44	14	32
Prince Edward Island.....	5	5	38	4	2	50
Nova Scotia.....	18	981	896	104	43	41
New Brunswick.....	30	352	882	140	41	29
Quebec.....	2,446	55,350	67,181	8,772	4,848	55
Ontario.....	1,725	22,853	51,305	7,960	3,990	50
Manitoba.....	88	1,308	3,170	241	121	50
Saskatchewan.....	88	1,019	3,105	230	113	49
Alberta.....	158	3,764	5,237	1,112	480	43
British Columbia.....	329	7,038	6,983	798	435	54
<b>Totals.....</b>	<b>4,892</b>	<b>92,937</b>	<b>138,981</b>	<b>19,405</b>	<b>10,087</b>	<b>52</b>
	BANKRUPT ESTATES <sup>1</sup>			PROPOSALS		
	Paid to Unsecured Creditors	Retained by Secured Creditors	Average Percentage Recovered by Unsecured Creditors	Proposals Closed	Unsecured Liabilities as Estimated by Debtors	Paid to Unsecured Creditors
	\$'000	\$'000	p.c.	No.	\$'000	\$'000
Newfoundland.....	30	62	16	—	—	—
Prince Edward Island.....	2	4	5	—	—	—
Nova Scotia.....	61	548	7	1	201	24
New Brunswick.....	99	100	11	1	63	17
Quebec.....	3,924	33,982	6	307	17,689	2,263
Ontario.....	3,970	11,315	8	40	6,538	1,679
Manitoba.....	120	722	4	4	678	28
Saskatchewan.....	117	159	4	4	608	1
Alberta.....	632	1,954	12	3	1,844	475
British Columbia.....	363	2,172	5	3	126	79
<b>Totals.....</b>	<b>9,318</b>	<b>51,018</b>	<b>7<sup>2</sup></b>	<b>363</b>	<b>27,747</b>	<b>4,566</b>

<sup>1</sup> Include bankruptcy administrations under the summary provisions of the Bankruptcy Act. <sup>2</sup> The specific percentages for 1970, calculated on the liabilities estimated by debtors, were 8.3 p.c. for ordinary and 1.6 p.c. for summary administrations.

**Returns under the Bankruptcy and Winding-Up Acts.\***—Statistics Canada data concerning bankruptcies and insolvencies cover only the failures coming under federal legislation, i.e., the Bankruptcy Act and the Winding-Up Act. The figures of Table 2 cover business failures only, excluding failures of individuals such as wage-earners, salesmen and executive personnel.

\* Prepared by the Business Finance Division, Statistics Canada.



**2.—Bankruptcies and Insolvencies under Federal Legislation, by Province, 1961-70**

Year	Atlantic Provinces	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Total
	No.	No.	No.	No.	No.	No.	No.	No.
1961.....	47	1,450	932	39	25	62	104	2,659
1962.....	33	1,694	1,177	47	36	94	109	3,190
1963.....	60	1,987	1,389	45	37	67	92	3,677
1964.....	67	1,872	1,281	53	30	80	116	3,499
1965.....	43	1,748	1,248	41	22	103	90	3,295
1966.....	40	1,698	1,022	55	29	79	84	3,007
1967.....	43	1,446	893	60	35	64	90	2,631
1968.....	39	1,248	921	64	50	73	121	2,516
1969.....	52	1,424	895	60	64	87	117	2,699
1970.....	45	1,543	1,212	70	80	136	195	3,281

**3.—Bankruptcies and Insolvencies under Federal Legislation, by Branch of Business, 1961-70**

Year	Primary In- dustries	Manu- fac- turing	Con- struc- tion	Transpor- tation, Communi- cations and Other Utilities	Trade	Finance, Insurance and Real Estate	Service	Total
	No.	No.	No.	No.	No.	No.	No.	No.
1961.....	86	285	470	113	1,234	69	402	2,659
1962.....	93	326	573	143	1,496	82	477	3,190
1963.....	111	365	714	166	1,634	110	577	3,677
1964.....	146	327	706	181	1,492	92	555	3,499
1965.....	151	346	628	193	1,359	115	503	3,295
1966.....	156	323	559	168	1,236	95	470	3,007
1967.....	138	272	451	186	1,055	122	408	2,631
1968.....	110	267	442	168	1,061	86	382	2,516
1969.....	111	278	440	203	1,150	100	417	2,699
1970.....	166	349	490	242	1,411	118	505	3,281

**4.—Estimated Liabilities<sup>1</sup> of Bankruptcies and Insolvencies, 1961-70**

Year	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia	Total
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
1961.....	4,714	49,133	48,352	7,075	7,246	116,520
1962.....	2,566	77,002	55,946	6,843	7,083	149,440
1963.....	3,788	91,467	84,260	8,330	7,757	195,602
1964.....	5,863	111,172	71,193	12,144	8,362	208,734
1965.....	2,513	107,182	258,934	15,234	9,787	393,650
1966.....	5,242	112,681	108,631	10,989	9,924	247,467
1967.....	6,772	123,457	60,422	21,344	6,069	218,064
1968.....	1,868	89,771	62,883	16,403	9,810	180,735
1969.....	3,137	118,534	51,078	13,208	25,148	211,105
1970.....	7,346	138,461	76,967	20,998	13,876	257,648

<sup>1</sup> Estimated by debtors and therefore to be accepted with reservations.

## 5.—Bankruptcies and Insolvencies, by Industry and Economic Area, 1970

Industry	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia	Total	Total Liabilities
	No.	No.	No.	No.	No.	No.	\$'000
<b>Primary Industries.....</b>	<b>1</b>	<b>38</b>	<b>70</b>	<b>28</b>	<b>29</b>	<b>166</b>	<b>11,153</b>
<b>Manufacturing.....</b>	<b>3</b>	<b>205</b>	<b>108</b>	<b>19</b>	<b>14</b>	<b>349</b>	<b>61,654</b>
Foods and beverages.....	—	21	6	3	1	31	3,111
Textiles.....	—	5	2	—	—	7	1,200
Clothing.....	—	34	7	—	—	41	9,503
Wood.....	—	37	23	3	6	69	7,404
Paper and allied industries.....	—	27	20	5	1	53	5,042
Primary and fabricated metal, machinery, transportation equip- ment, electrical products and non- metallic mineral products.....	3	48	38	5	4	98	28,41
Chemical.....	—	6	2	1	1	10	1,052
Other industries.....	—	27	10	2	1	40	5,924
<b>Construction.....</b>	<b>8</b>	<b>199</b>	<b>208</b>	<b>44</b>	<b>31</b>	<b>490</b>	<b>44,357</b>
General contractors.....	3	71	81	19	12	186	21,598
Special trade contractors.....	5	128	127	25	19	304	22,759
<b>Transportation, Communications and Other Utilities.....</b>	<b>5</b>	<b>81</b>	<b>98</b>	<b>33</b>	<b>25</b>	<b>242</b>	<b>11,802</b>
<b>Trade.....</b>	<b>21</b>	<b>716</b>	<b>497</b>	<b>110</b>	<b>67</b>	<b>1,411</b>	<b>70,505</b>
Food.....	6	156	74	18	4	258	13,200
General merchandise.....	3	22	30	1	3	59	2,650
Automotive products.....	6	142	98	34	17	297	12,551
Apparel and shoes.....	—	122	67	11	7	207	7,937
Hardware.....	1	40	29	9	3	82	5,675
Household furniture and appliances..	2	83	73	8	14	180	11,360
Drugs.....	—	12	4	2	4	22	1,109
Other trades.....	3	139	122	27	15	306	16,023
<b>Finance, Insurance and Real Estate</b>	<b>3</b>	<b>49</b>	<b>45</b>	<b>10</b>	<b>11</b>	<b>118</b>	<b>26,360</b>
<b>Service.....</b>	<b>4</b>	<b>255</b>	<b>186</b>	<b>42</b>	<b>18</b>	<b>505</b>	<b>31,817</b>
Education, health and welfare.....	—	12	10	—	—	24	867
Recreational.....	—	10	22	2	2	36	1,251
Business.....	3	32	40	11	5	88	11,370
Personal.....	3	184	99	20	11	317	17,283
Other.....	1	17	15	7	—	40	1,046
<b>Totals, All Industries.....</b>	<b>45</b>	<b>1,543</b>	<b>1,212</b>	<b>286</b>	<b>195</b>	<b>3,281</b>	<b>257,648</b>

## PART IV.—PRICES\*

Price statistics primarily take the form of indexes which express prices in each period as a percentage of prices in a designated base period. The indexes measure the movement of prices from period to period. Another less frequent type of price index expresses prices in one location as a percentage of prices in a base location, which is set equal to 100, and measures the comparative levels of prices between places at a point in time.

Summary tables of available price statistics are presented herein relating to general wholesale prices, prices of capital goods and construction, consumer prices, and prices of common and preferred stocks. In addition, statistics on patterns of family expenditure, by income group, are provided in Section 5. For further details, including indexes of selling prices of each of some 100 Canadian manufacturing industries, the reader is advised to consult the monthly Statistics Canada publication *Prices and Price Indexes* (Catalogue No. 62-002). In addition, price indexes relating to merchandise exports and imports (Chap. XXI) are published monthly in Catalogue No. 65-004 and No. 65-007, respectively. Similarly, implicit price indexes for gross national product and its main components (Chap. XXIII) are published quarterly in Catalogue No. 13-001.

\* Prepared in the Prices Division, Statistics Canada.

## Section 1.—Index Numbers of Wholesale Prices

The term "wholesale prices" refers to transactions that occur below the retail level. It relates to sales and purchases of raw materials, semi-processed goods and manufactured products. Indexes of wholesale prices are constructed in two primary ways: (1) on an industry basis, in which the indexes are prepared for individual industries and aggregated for groups of industries; and (2) on a commodity basis, in which indexes are prepared for individual commodities and aggregated for groups of commodities. "Industry Selling Price Indexes" for manufacturing industries are the principal industry-classified indexes available in Canada. The "General Wholesale Index" is the major commodity-classified index.

Wholesale price indexes and individual price series have numerous uses, one of the most important of which is in escalator clauses of contracts where prices quoted are linked to movements of specified price indexes. They are also of major importance in studies of replacement and construction costs in investment projects; analyses of price movements of both individual items and commodity groups in relation to purchases and sales; industrial planning and market analysis; valuations for tax purposes and inventory analysis; and studies of changes in physical volume. Foreign companies also utilize the indexes in assessing the competitive position of Canadian goods.

**Industry Selling Price Indexes (Manufacturing).**—Indexes of the selling prices of some 100 individual industries classified to Manufacturing in the Standard Industrial Classification are produced and published monthly. In addition, indexes are published for 12 major groups of manufacturing industries and a composite gross weighted index for all manufacturing has been introduced recently. The indexes are published monthly in *Prices and Price Indexes* (Catalogue No. 62-002).

The indexes measure the movements through time of prices received by manufacturers for their products. Prices reflected in the index are f.o.b. manufacturers' establishment, excluding excise taxes levied on manufacturers' sales. The items in the current indexes and their weights, indicating their relative importance, are based on manufacturers' shipments in 1961.

The composite gross weighted index for manufacturing is presented in Table 1, for the years 1961-70.

During 1970, the rate of increase in manufacturers' selling prices declined markedly. In January, prices rose 0.8 p.c. above the level prevailing in the preceding month of December 1969. Thereafter, the month-to-month percentage rises in prices softened and in May 1970 the gross weighted index began to decline. Further reductions occurred in subsequent months and, by December 1970, the index was only 0.6 p.c. above its level of December 1969. This was the smallest 12-month increase recorded for manufacturers' selling prices for any month since April 1965.

### 1.—Gross Weighted Industry Selling Price Index (Manufacturing), 1961-70

(1961=100)

NOTE.—The index measures the movements of prices of gross shipments of manufacturing industries, including inter-industry shipments between individual industries within manufacturing. Therefore, it duplicates the movements of some prices in the sense that, for example, flour prices are given full weight as part of the shipments of the flour mills industry and then are implicitly counted again through full weighting of the shipment prices of those manufacturing industries which use flour as an ingredient in their outputs, e.g., bread, biscuits, cakes, etc.

Year	Index	Year	Index	Year	Index
1961.....	100.0	1965.....	104.7	1969.....	116.3
1962.....	101.1	1966.....	107.7	1970.....	119.1
1963.....	102.5	1967.....	109.8		
1964.....	103.3	1968.....	112.1		

**General Wholesale Index.**—The general wholesale index includes mainly manufacturers' prices but also incorporates those of wholesalers proper, assemblers of primary products, agents and operators of other types of commercial enterprises which trade in commodities of a type, or in quantities characteristic of primary marketing functions. Prices are grouped according to a commodity classification scheme based on chief component material similarities. Indexes classified according to degree of manufacture are also available. In Table 2, the general wholesale index is presented for the period 1947-70. This index is used as a conventional summary figure against which to observe the behaviour of particular price groups such as farm products, raw materials and building materials, for which separate price indexes have been constructed. Table 3 gives, for the years 1961-70, the general wholesale price index and two of its integral classifications—raw and partly manufactured goods, and fully and chiefly manufactured goods; also presented are two related systems—industrial materials and Canadian farm products.

## 2.—General Wholesale Index Annual Averages, 1947-70

(1935-39=100)

Year	Average	Year	Average	Year	Average	Year	Average
1947.....	163.3	1953.....	220.7	1959.....	230.6	1965.....	250.4
1948.....	193.4	1954.....	217.0	1960.....	230.9	1966.....	259.5
1949.....	198.3	1955.....	218.9	1961.....	233.3	1967.....	264.1
1950.....	211.2	1956.....	225.6	1962.....	240.0	1968.....	269.9
1951.....	240.2	1957.....	227.4	1963.....	244.6	1969.....	282.4
1952.....	226.0	1958.....	227.8	1964.....	245.4	1970.....	286.4

## 3.—Annual Index Numbers of Wholesale Price Groups, 1961-70

(1935-39=100)

Year	General Wholesale Index	Raw and Partly Manufactured Goods	Fully and Chiefly Manufactured Goods	Industrial Materials	Canadian Farm Products		
					Field	Animal	Total
1961.....	233.3	212.6	244.5	243.2	191.7	270.0	230.9
1962.....	240.0	223.8	249.0	248.0	195.5	286.0	240.8
1963.....	244.6	226.9	254.2	253.5	197.2	275.4	236.3
1964.....	245.4	225.7	256.4	258.3	198.2	267.3	232.7
1965.....	250.4	231.2	261.3	258.7	210.3	289.3	249.8
1966.....	259.5	242.7	268.6	261.4	209.7	321.5	265.6
1967.....	264.1	246.1	274.2	253.1	202.5	325.3	263.9
1968.....	269.9	249.1	281.6	254.0	186.3	329.3	257.8
1969.....	282.4	260.0	294.9	267.7	180.7	357.9	269.3
1970.....	286.4	265.0	298.4	268.8	185.6 <sup>p</sup>	352.1 <sup>p</sup>	268.9 <sup>p</sup>

**World Wholesale Price Indexes.**—Price changes within different countries have varied widely during the years. Comparisons of Canadian wholesale price indexes with those of other countries are given in Table 4.



**4.—Index Numbers of Wholesale Prices in Canada and Other Countries, 1968-70**

(1963=100)

SOURCE: *United Nations Monthly Bulletin of Statistics*, August 1971.

Country	1968	1969	1970	Country	1968	1969	1970
Belgium.....	107	113	118	India.....	153	156	166
Brazil.....	517	..	702	Iran.....	107	109	113
Britain.....	117	121	126	Ireland.....	123	132	139
<b>Canada.....</b>	<b>110</b>	<b>115</b>	<b>117</b>	Korea, Republic of.....	185	198	216
Chile.....	358	489	665	Netherlands.....	116	117	124
Denmark.....	114	117	127	New Zealand (1964=100).....	115	121	127
France.....	106	115	124	Norway.....	113	117	123
Germany, Federal Republic of.....	99	101	107	Sweden.....	113	118	126
Greece.....	109	113	118	Switzerland.....	104	107	112
				Turkey.....	129	137	..
				United Arab Republic.....	127	126	..
				United States.....	108	113	117

**Section 2.—Price Index Numbers of Construction and Capital Goods**

This Section covers price indexes currently available for residential and non-residential building, and engineering construction. Further details concerning these series or developments under way in other areas are available from the Prices Division of Statistics Canada.



The vertical mosaic of Vancouver's burgeoning West End apartment complexes shows clearly the concentration of population in this one small area of the British Columbia city. It is now the second most densely populated region in North America, next to New York City's Harlem.

**Residential and Non-residential Building Construction Indexes.**—Two series of indexes are produced by Statistics Canada measuring price changes for residential and non-residential building construction. These are base-weighted indexes of materials and labour, and are presented in Table 5 for the years 1956-70.

The building materials price indexes are drawn from the system of industry selling price indexes (*Industry Selling Price Indexes 1956-1968*, Catalogue No. 62-528) and relate to a selection of building materials derived from a sample of buildings surveyed after the Second World War. Some modifications have since been introduced into the series (described in *Prices and Price Indexes* for March 1969 and May 1970) and the federal sales tax has been added to the materials indexes as appropriate. The wage rate component is derived from surveys conducted by the Department of Labour for construction trades in various centres; these are base rates and usually reflect union scale or collective agreements. The combined indexes of materials and wage rates do not reflect changes in profit margins or in productivity; implicit price indexes from gross fixed capital formation reflecting these factors are available from the National Income and Expenditure Division of Statistics Canada.

#### 5.—Price Indexes of Residential and Non-residential Building Materials and Wage Rates, 1956-70

(1961=100)

NOTE.—Figures from 1935 are available in the May 1970 issue of *Prices and Price Indexes*.

Year	Price Indexes of Building Materials		Construction Wage Rates	Composite Indexes of Materials and Wage Rates	
	Residential	Non-residential		Residential	Non-residential
1956.....	100.1	97.7	75.4	88.2	87.6
1957.....	100.1	99.2	79.9	90.4	90.6
1958.....	99.2	99.0	85.7	92.7	93.0
1959.....	101.3	100.5	91.1	96.4	96.3
1960.....	100.7	101.0	97.0	98.9	99.2
1961.....	100.0	100.0	100.0	100.0	100.0
1962.....	100.7	99.1	104.4	102.5	101.5
1963.....	104.1	101.8	108.1	106.0	104.6
1964.....	109.5	106.6	113.1	111.2	109.5
1965.....	115.8	111.5	118.6	117.1	114.7
1966.....	120.5	115.4	128.1	124.2	121.1
1967.....	125.3	117.8	140.8	132.8	128.2
1968.....	132.1	120.7	152.8	142.0	135.1
1969.....	139.2	126.1	164.5	151.4	143.3
1970.....	137.6	129.5	188.7	162.2	156.1

**Highway Construction Indexes.**—The price indexes of highway construction in Canada express prices paid by provincial governments each year in contracts awarded for highway construction as a percentage of price paid in 1961. The base-weighted indexes measure the effect of price change on the cost of specified programs of new highway construction represented by contracts of approximately \$50,000 or more awarded by provincial governments.

The all-items indexes and their components are useful in planning and budgeting for highway construction programs, in updating previously costed projects, in estimating replacement cost of previously completed road work and in measuring historical price trends. Prices contained in the index are for units of construction work put in place, such as a cubic yard of earth excavation or a ton of bituminous hot-mix paving. Also included are prices of some materials, such as culvert pipe, usually supplied to the contractor by the highways department. (*Prices and Price Indexes* for December 1967 contains details of the problems of estimating price change for highway construction.)

### 6.—Highway Construction Price Indexes for All-Items and Major Components, Seven-Province Composite, Years Ended Mar. 31, 1956-70

(1961=100)

Year Ended Mar. 31—	All-Items	Major Components		
		Grading	Granular Base Courses	Surface Courses
1956.....	131.6	139.1	126.1	126.1
1957.....	122.1	123.2	117.6	127.5
1958.....	111.1	114.3	105.2	114.8
1959.....	112.2	113.7	109.5	113.7
1960.....	110.6	113.1	104.5	116.1
1961.....	100.0	100.0	100.0	100.0
1962.....	103.7	107.6	97.6	106.2
1963.....	110.6	118.1	103.7	107.4
1964.....	113.5	118.6	109.6	109.8
1965.....	130.9	137.3	131.3	117.6
1966.....	140.1	147.3	140.1	126.0
1967.....	135.1	141.6	133.7	124.8
1968.....	132.9	140.6	129.5	123.4
1969.....	138.0	146.4	136.5	123.9
1970.....	145.7	154.3	142.2	134.7

### 7.—Highway Construction Price Indexes, by Province, Years Ended Mar. 31, 1956-70

(1961=100)

Year Ended Mar. 31—	Newfoundland	Nova Scotia	New Brunswick	Quebec (1964=100)	Ontario <sup>1</sup>	Manitoba	Saskatchewan	British Columbia
1956.....	136.2	115.1	99.9	...	134.2	133.1	152.5	142.4
1957.....	114.6	104.5	97.1	...	117.5	149.1	156.7	132.6
1958.....	130.3	103.7	103.2	...	109.2	111.5	121.5	111.6
1959.....	118.9	110.0	102.5	...	113.8	109.7	111.0	114.1
1960.....	124.7	118.4	96.8	...	107.2	116.4	105.3	113.7
1961.....	100.0	100.0	100.0	...	100.0	100.0	100.0	100.0
1962.....	109.1	98.2	99.3	...	110.2	108.0	98.4	95.2
1963.....	101.1	95.9	102.2	...	126.5	120.2	102.7	96.9
1964.....	108.4	96.4	103.7	100.0	123.7	123.7	116.8	106.1
1965.....	119.5	116.8	103.2	96.6	144.0	133.3	144.4	127.7
1966.....	129.6	116.1	103.6	103.8	157.4	152.9	168.1	129.7
1967.....	115.2	122.7	103.0	101.5	156.3	153.8	137.6	119.4
1968.....	120.8	119.9	101.8	101.1	151.5	140.8	124.9	126.6
1969.....	116.5	123.1	102.2	107.2	154.0	144.6	132.1	143.2
1970.....	145.5	134.1	121.3	109.5	159.2	161.1	144.9	134.4

<sup>1</sup> Direct comparisons should not be made between this index and the highway index published by the Ontario Department of Highways; the item content is substantially different.

**Electrical Utility Construction Indexes.**—The price indexes of electrical utility construction, which include those of distribution systems, transmission lines, transformer stations and hydro-electric generating stations, give some idea of the impact of price change on the cost of materials, labour and equipment used in constructing and equipping electrical utilities in a specified base period. The index provides an estimate of how much more, or less, it would cost to reproduce the base-period program of construction in another period, using the same construction technology as in the base period and assuming rates of profit and productivity in construction are the same in both periods.

Major uses of the index relate to the estimation of reproduction costs or the deflation of capital formation. Fixed-weighted national input indexes have deficiencies for this purpose which may be alleviated by the use of detailed deflation techniques and through the utilization of specifically appropriate productivity adjustments. (These problems are discussed in Statistics Canada Occasional Paper *Price Indexes of Electric Utility Construction*, Catalogue No. 62-526.)



Prices used in the indexes are, for the most part, selling prices reported monthly by manufacturers for materials or equipment. The price reported is for units and terms of sale representative of the volume sales of the manufacturer. Federal sales tax changes are reflected in the index but no adjustments have been made for provincial tax changes. Until December 1964, wage rate data were supplied by the Department of Labour and represented minimum hourly rates paid to construction workers in major cities employed on Federal Government contracts. In 1965, union basic wage rates reported by major utilities and some contractors were incorporated into the index. The sample selected provides an estimate of wage rate change for urban own-account and contract electrical utility construction.

**8.—Price Indexes of Electrical Utility Distribution Systems, Transmission Lines, Transformer Stations, and Hydro-Electric Generating Stations, 1956-70**  
(1961=100)

Year	Distribution Systems			Transmis- sion Lines	Transformer Stations			Hydro- Electric Generating Stations
	Construc- tion	Equipment	Total	Total	Structures and Im- provements	Equipment	Total	Total
1956.....	92.7	100.4	95.1	92.1	110.1	127.9	115.2	...
1957.....	91.9	106.6	96.5	94.4	105.6	132.6	118.1	...
1958.....	93.5	92.5	93.2	95.7	101.3	118.4	109.0	...
1959.....	96.3	97.9	96.8	97.0	102.6	123.2	113.5	...
1960.....	98.5	104.3	100.3	98.9	103.3	115.7	109.8	...
1961.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1962.....	102.5	100.4	101.8	100.9	102.6	105.9	105.1	102.7
1963.....	105.2	96.4	102.5	102.3	108.9	107.3	107.6	106.0
1964.....	107.7	97.6	104.6	102.7	112.9	111.9	112.0	109.5
1965.....	112.3	95.4	107.1	108.5	124.0	117.4	118.3	114.8
1966.....	118.4	99.0	112.4	113.0	131.0	120.4	122.5	121.8
1967.....	125.3	95.7	116.1	118.7	127.2	115.1	121.2	126.2
1968.....	126.3	91.8	115.6	121.9	123.5	106.7	117.2 <sup>†</sup>	131.3
1969.....	133.0	91.8	120.3	127.5	131.3	106.1	120.4 <sup>†</sup>	139.2
1970.....	144.0	95.4	129.0	137.0	137.4	119.4	132.2	147.4

**Price Indexes of Machinery and Equipment.**—A system of base-weighted price indexes for machinery and equipment has been under development for a number of years, a principal use of which would be the restatement of historical investment costs in terms of price levels of a particular year. At present, only price indexes of construction machinery and equipment have been published and are provided in Table 9.

Prices used in the indexes are, for the most part, selling prices reported monthly by manufacturers, although in some cases distributors' prices are used. Prices of imported machinery and equipment are included in the index, represented either by commodity price indexes of the United States Bureau of Labor Statistics or by prices collected directly from foreign manufacturers. All prices have been adjusted as relevant to include duty, exchange and federal sales tax.

**9.—Price Indexes of Construction Machinery and Equipment, 1961-70**  
(1968=100)

Year	Composite Index	Canadian Made	Imported	Year	Composite Index	Canadian Made	Imported
1961.....	78.2	...	...	1966.....	92.1	...	...
1962.....	82.6	...	...	1967.....	94.7	...	...
1963.....	84.8	...	...	1968.....	100.0	100.0	100.0
1964.....	87.3	...	...	1969.....	104.4	103.6	104.8
1965.....	89.2	...	...	1970.....	106.4	105.8	106.6



### Section 3.—Consumer Price Index\*

The purpose of the consumer price index is to measure the movement from month to month in retail prices of goods and services bought by a representative cross-section of the Canadian urban population. For a particular article or service, a price index number is simply the price of the article in one period of time expressed as a percentage of its price in a reference period, usually called a base period. However, indexes for individual goods may be combined to form indexes representing prices of broad groups of goods and services. Thus, the consumer price index relates to the wide range of goods and services bought by Canadian urban families. The index expresses the combined prices of such goods each month as a percentage of their prices in the base period 1961.

The group of goods and services represented in the index is called the index "basket" and "weights" are assigned to the price indexes of individual items for purposes of combining them into an over-all or composite index. The weights reflect the relative importance of items in expenditures of middle-size urban families with medium incomes. The basket is an unchanging or equivalent quantity and quality of goods and services. Only prices change from month to month and the index, therefore, measures the effect of changing prices on the cost of purchasing the fixed basket. The basket and weights now used in the index are based on expenditures in 1957 of families of two to six persons, with annual incomes of \$2,500 to \$7,000, living in cities of 30,000 population or over.

#### 10.—Consumer Price Index Numbers, 1947-70

(1961=100)

Year	Index	Year	Index	Year	Index	Year	Index
1947.....	65.6	1953.....	89.4	1959.....	97.9	1965.....	107.4
1948.....	75.0	1954.....	89.9	1960.....	99.1	1966.....	111.4
1949.....	77.4	1955.....	90.1	1961.....	100.0	1967.....	115.4
1950.....	79.6	1956.....	91.4	1962.....	101.2	1968.....	120.1
1951.....	88.0	1957.....	94.3	1963.....	103.0	1969.....	125.5
1952.....	90.2	1958.....	96.8	1964.....	104.8	1970.....	129.7

The behaviour of the consumer price index during the years of almost continuous economic growth following the end of the Second World War up to 1959 is discussed in the 1962 Year Book, pp. 928 and 929, and the movement during 1959-69 in subsequent editions. From 1969 to 1970 the annual average consumer price index increased by 3.4 p.c., which compares with an average increase in the preceding five years of 3.7 p.c. On the basis of the movement in consumer prices, the purchasing power of the 1961 consumer dollar may be said to have dropped from 80 cents in 1969 to 77 cents in 1970.

The major cause of the lower-than-average increase in the consumer price index from 1969 to 1970 was a decline in the rate of increase in the heavily weighted food component. The relatively small increases recorded for the clothing and the tobacco and alcohol indexes were also important factors. On the other hand, the heavily weighted housing component advanced 4.9 p.c. from 1969 to 1970, an increase not too different from its advance from 1968 to 1969, and considerably larger than the average increase for the preceding five years.

Table 11 presents indexes for major components and the all-items index for the period 1961-70. In this classification of commodities and services composing the index, the index items are grouped according to broad categories of use by the consumer.

\* A comprehensive description of the index is contained in the publication *The Consumer Price Index (1949=100)*—Revision Based on 1957 Expenditures (Catalogue No. 62-518). A description of the change in the base period from 1949 to 1961 appears in the January 1969 issue of *Prices and Price Indexes* (Catalogue No. 62-002).

## 11.—Consumer Price Indexes for Specific Groups, 1961-70

(1961=100)

Year	Food	Housing	Clothing	Transportation	Health and Personal Care	Recreation and Reading	Tobacco and Alcohol	All-Items Index
GROUP WEIGHT AS A PERCENTAGE OF TOTAL.....	27	32	11	12	7	5	6	100
1961.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1962.....	101.8	101.2	100.9	99.9	102.0	100.8	101.3	101.2
1963.....	105.1	102.3	103.4	99.9	104.6	102.2	101.5	103.0
1964.....	106.8	103.9	106.0	101.0	108.0	103.9	103.4	104.8
1965.....	109.6	105.8	107.9	104.8	113.0	105.6	105.1	107.4
1966.....	116.6	108.7	112.0	107.3	116.5	108.6	107.6	111.4
1967.....	118.1	113.4	117.6	111.8	122.5	114.1	110.4	115.4
1968.....	122.0	118.6	121.1	114.7	127.4	119.7	120.4	120.1
1969.....	127.1	124.7	124.5	120.0	133.6	126.8	125.0	125.5
1970.....	130.0	130.9	126.8	124.8	139.5	131.2	126.5	129.7

Items in the index may also be grouped by type of commodity and service, which permits another view of the incidence of changes in prices. Component indexes of this grouping are presented in Table 12. From 1969 to 1970, the commodities index rose 2.1 p.c. compared with an average rise of 3.0 p.c. a year for the preceding five years. The main cause of this lower-than-average increase was a 2.3-p.c. rise in food prices, which was considerably less than the 3.6-p.c. rise on average for the preceding five years. Further, prices of non-durable commodities, excluding food, advanced 2.4 p.c. in 1970, the five-year average rise being 3.1 p.c., and those for durable commodities moved up 1.2 p.c. from 1969 to 1970 in line with the average five-year increase of 1.3 p.c. The services index advanced 5.9 p.c. compared with an average five-year increase of 5.1 p.c. but the 1970 increase over 1969 was considerably less than the 7.0-p.c. advance that occurred from 1968 to 1969.

## 12.—Consumer Price Index by Type of Commodity and Service, 1961-70

(1961=100)

Year	Commodities				Total Services	All-Items Index
	Non-durable		Durable <sup>1</sup>	Total		
	Food	Other				
GROUP WEIGHT AS A PERCENTAGE OF TOTAL <sup>2</sup> .....	27	31	12	70	30	100
1961.....	100.0	100.0	100.0	100.0	100.0	100.0
1962.....	101.8	100.7	99.3	100.9	101.9	101.2
1963.....	105.1	101.7	99.5	102.6	103.8	103.0
1964.....	106.8	103.4	98.6	103.9	106.8	104.8
1965.....	109.6	104.9	98.7	105.7	111.2	107.4
1966.....	116.6	107.7	99.1	109.7	115.4	111.4
1967.....	118.1	111.9	102.1	112.6	121.6	115.4
1968.....	122.0	116.9	103.8	116.7	128.0	120.1
1969.....	127.1	120.5	104.9	120.5	136.9	125.5
1970.....	130.0	123.4	106.2	123.0	145.0	129.7

<sup>1</sup> Includes such items as new passenger cars, household appliances, television and radio sets, furniture, floor coverings and dishes.

<sup>2</sup> Component weights indicate the relative importance of item groups.

Table 13 presents regional consumer price indexes for ten cities or city combinations. These indexes do not show whether it costs more or less to live in one city than in another and should not be used for such comparisons. Their function is to measure percentage

changes in retail prices—over a certain time in each city or city combination—of a fixed basket of goods and services representing the level of consumption of a particular group of families. Indexes which compare price levels among major Canadian cities are shown on p. 1053.

### 13.—Consumer Price Indexes for Regional Cities, 1961-70

(1961=100)

Year	St. John's, Nfld.	Halifax, N.S.	Saint John, N.B.	Montreal, Que.	Ottawa, Ont.	Toronto, Ont.	Winnipeg, Man.	Saskatoon-Regina, Sask.	Edmonton-Calgary, Alta.	Vancouver, B.C.
1961.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1962.....	100.8	101.3	100.9	100.2	101.2	100.9	101.3	101.7	101.0	100.3
1963.....	102.8	102.3	102.5	102.9	102.9	102.6	102.2	102.5	102.1	101.9
1964.....	103.9	102.7	103.5	104.5	104.5	104.3	103.8	103.5	102.6	102.6
1965.....	105.5	104.6	105.1	106.7	106.3	106.9	106.1	105.2	104.1	104.5
1966.....	108.0	107.4	107.8	109.9	110.4	111.6	109.3	108.3	107.5	107.0
1967.....	110.9	109.9	111.1	114.2	113.1	114.9	113.3	111.3	111.8	111.0
1968.....	115.9	114.2	115.1	118.1	118.4	119.3	118.2	115.8	116.7	115.1
1969.....	119.3	119.5	119.8	121.8	123.1	124.1	123.1	119.7	121.5	119.0
1970.....	121.6	124.4	123.4	124.3	127.4	127.3	127.0	122.2	125.1	123.0

**World Retail Price Indexes.**—In order to place movements in Canadian retail prices into perspective, they should be compared with price changes occurring elsewhere in the world. This is done in Table 14, which indicates the percentage changes over the previous year in the consumer price index for each country specified. For purposes of comparison, countries are listed, alphabetically, by region. It should be noted that all percentages are rounded to the nearest whole number.

### 14.—Percentage Changes in Consumer Price Indexes in Canada and Other Countries, 1969 and 1970

SOURCE: *United Nations Monthly Bulletin of Statistics*, August 1971.

Country	Change over Previous Year		Country	Change over Previous Year	
	1969	1970		1969	1970
	p.c.	p.c.		p.c.	p.c.
North America—			Africa—		
Canada.....	4	3	Congo (Kinshasa).....	14	3
Mexico (Mexico City).....	3	5	Kenya (Nairobi).....	—	2
United States.....	5	6	South Africa (European population).....	3	5
South America—			Asia—		
Argentina (Buenos Aires).....	8	13	Ceylon (Colombo).....	7	6
Brazil (São Paulo).....	23	19	India.....	1	5
Chile (Santiago).....	31	32	Indonesia (Djakarta).....	6	12
			Korea, Republic of.....	10	16
			Pakistan (Karachi).....	3	5
Europe—			Australasia—		
Belgium.....	4	4	Australia.....	3	4
Denmark.....	4	7	New Zealand.....	5	7
France.....	6	5	Middle East—		
Germany, Federal Republic of.....	3	4	Iran.....	3	2
Greece.....	2	3	Israel.....	3	6
Ireland.....	7	8	Turkey (Istanbul).....	4	8
Netherlands.....	7	4			
Sweden.....	3	7			
Switzerland.....	3	4			
United Kingdom.....	5	6			

### Section 4.—Intercity Retail Price Differentials\*

As noted on p. 1051, the regional city price indexes given in Table 13 measure the *movements* of consumer prices *within each city* and cannot be used to compare levels of prices between cities. Indexes that do compare levels of prices among 11 major Canadian cities are given in Table 15. These indexes express prices in each city as a percentage of prices in Winnipeg as at May 1969, with Winnipeg prices at that date set equal to 100. The selection of Winnipeg as the base city has no special significance; the indexes may be expressed on the base of any of the individual cities included. The selected commodity groupings shown make up about three quarters of the average urban consumer budget, the most important omissions, for technical reasons, being shelter (rented and owned), fuel, light and water, and restaurant meals.

The retail prices from which the indexes were derived are largely those collected in each city for production of the consumer price index. Comparability between cities was achieved by matching, as far as possible, quotations for similar qualities of goods and services and types of retail outlets. Since prices compared include sales and excise taxes as applicable, variations between provinces in the scale of sales taxes imposed on a wide range of non-food commodities can be of significance in explaining intercity price differentials for these items.

#### 15.—Intercity Indexes of Retail Price Differentials for Selected Groupings of Commodities and Services, as at May 1969

(Winnipeg, May 1969=100)

Commodity Grouping	St. John's, Nfld.	Char-lotte-town, P.E.I.	Hali-fax, N.S.	Saint John, N.B.	Mont-real, Que.	Otta-wa, Ont.	Toron-to, Ont.	Regi-na, Sask.	Edmon-ton, Alta.	Van-couver, B.C.
Food at home.....	108	101	102	102	95	100	96	101	99	101
Household operation <sup>1</sup> .....	..	113	112	..	110	106	106	100	100	112
Clothing.....	..	102	100	..	99	99	96	102	98	101
Transportation.....	..	..	103	..	109	101	102	100	99	101
Health and personal care.....	..	90	98	..	91	101	100	101	106	107
Recreation and reading....	..	105	105	..	108	107	105	98	100	106
Tobacco and alcohol.....	123	105	109	..	100	95	95	100	89	94

<sup>1</sup> Excludes fuel and lighting.

### Section 5.—Consumer Expenditure

Household surveys of family expenditure provide information on consumer spending that can be related to family characteristics, such as geographical location, family size, income level, etc. A primary purpose of such surveys is to provide information for constructing, reviewing and revising the weights of consumer price indexes. Initially, the small-scale sample surveys carried out in Canadian urban centres since 1953 were designed to follow changes in the spending patterns of a well-defined group of middle-income urban families known as the target group of the consumer price index. However, in the years from 1953 to 1968, during which seven survey programs were conducted, a growing demand

\* A fuller explanation of the study from which these indexes were derived, including more details of the price comparisons, is given in the November 1969 issue of *Prices and Price Indexes*.



for expenditure statistics to serve other needs of government, business, welfare organizations and academic research resulted in a widening in the scope and size of the surveys in recent years, and in a decision to expand the 1969-70 survey programs to provide a large-scale national survey for the first time since 1948-49.

In general, the survey program has consisted of two phases—the collection by means of monthly record-keeping surveys throughout the reference year of detailed information on family food expenditures, and the collection of information by annual recall of all family expenditure, income and change in assets and liabilities. In three surveys (1959, 1964 and 1967) the monthly surveys were omitted and the annual recall surveys were enlarged in size and scope to refer to all families and individuals regardless of family type or income. The 1959 survey was designed to represent population in all urban centres of 15,000 or over, whereas the 1964 and 1967 surveys referred to 11 major regional cities.

The family expenditure survey program undertaken for 1969 was national in scope, with considerably larger samples than previously, designed to represent both urban and rural households in the 10 provinces, excluding the Yukon and Northwest Territories.\* In monthly surveys throughout 1969, approximately 10,000 families and individuals kept detailed records of expenditures on food and selected non-food items, including quantities acquired. Early in 1970, a different sample of households was interviewed concerning all family expenditures in the calendar year 1969. Usable family records were obtained from about 15,000 families and individuals.

Table 16 presents a summary of family expenditure patterns for families of two or more in the 10 provinces, classified by family income in 1969.

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\* Results from the 1969 survey are being published in four volumes under the general title *Family Expenditure in Canada, 1969* (Catalogue Nos. 62-535 to 62-538 inclusive). Results from the 1969 food expenditure survey are available in two volumes entitled *Family Food Expenditure in Canada, 1969* (Catalogue Nos. 62-531 and 62-532). Earlier surveys have been published in occasional reports under the titles *Urban Family Expenditure* (1959, 1962, 1964 and 1967); *City Family Expenditure* (1953, 1955 and 1957); *Urban Family Food Expenditure* (1953, 1955, 1957 and 1962); and *Canadian Non-Farm Family Expenditures* (1947-48).

16.—Patterns of Family Expenditure by Family Income, 1969  
(Families of two or more persons)

Item	All Classes	Under \$3,000	\$3,000- \$3,999	\$4,000- \$4,999	\$5,000- \$5,999	\$6,000- \$6,999	\$7,000- \$7,999	\$8,000- \$8,999	\$9,000- \$9,999	\$10,000- \$10,999	\$11,000- \$11,999	\$12,000- \$14,999	\$15,000 or Over
<b>Family Characteristics—</b>													
Families in sample..... No.	13,105	994	963	1,138	1,276	1,287	1,245	1,032	814	662	1,223	1,087	1,087
Weighted percentage of families.....	100.0	5.8	6.2	7.7	9.5	9.7	9.9	8.7	6.7	3.6	11.2	10.3	10.3
<b>AVERAGE—</b>													
Family size..... No.	3.8	2.6	3.3	3.7	3.9	3.9	4.1	4.0	4.1	4.1	4.0	4.0	4.3
Children under 5.....	0.4	0.2	0.3	0.4	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.2	0.2
Children 5-15.....	1.0	0.4	0.8	1.0	1.1	1.1	1.3	1.2	1.2	1.1	1.0	1.1	1.1
Adults 16-17.....	0.2	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Adults 18-64.....	2.1	1.1	1.5	1.8	1.9	2.0	2.1	2.2	2.2	2.4	2.4	2.7	2.7
Adults 65 and over.....	0.9	0.6	0.6	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Full-time earners.....	0.3	0.2	0.3	0.5	0.6	0.9	1.0	1.1	1.1	1.3	1.3	1.5	1.5
Age of head..... yrs.	45.5	60.6	54.4	49.1	44.8	42.9	41.8	42.2	40.7	42.7	42.5	43.0	43.0
Net income before taxes.....	2,179	3,482	4,502	5,497	6,501	7,477	8,474	9,462	10,462	11,464	13,273	20,375	20,375
Other money receipts..... \$	207	243	247	165	121	201	138	143	243	121	198	237	237
Net change in assets and liabilities..... \$	+176	-418	-412	-278	-326	-82	-69	+167	+264	+264	+528	+2,097	+2,097
<b>PERCENTAGE—</b>													
Home-owners..... p.c.	65	66	63	61	57	58	63	68	67	70	69	80	80
Car or truck owners.....	81	47	56	68	82	84	88	88	91	92	92	93	93
With head Canadian-born.....	76	75	78	83	78	77	77	72	75	76	76	73	73
With wife employed full-time.....	12	1	2	3	5	6	10	13	20	25	27	28	28
<b>Average Dollar Expenditure—</b>													
Food.....	1,718	963	1,169	1,357	1,565	1,650	1,763	1,831	1,896	2,014	2,062	2,507	2,507
Shelter.....	1,352	710	809	926	1,139	1,294	1,355	1,459	1,558	1,577	1,694	2,247	2,247
Rented living quarters.....	400	219	284	325	420	435	460	496	431	431	468	396	396
Owned housing.....	591	234	251	310	412	480	564	687	736	748	818	1,852	1,852
Other housing.....	72	12	18	27	35	47	46	70	73	92	100	252	252
Water, power and fuel.....	289	244	257	264	272	275	286	297	300	306	308	367	367
Household operation.....	370	173	203	250	298	327	362	374	420	441	489	652	652
Furnishings and equipment.....	435	154	206	248	340	355	414	450	537	549	614	878	878
Household appliances.....	114	50	65	75	89	102	113	121	151	143	147	172	172
Other.....	321	104	141	174	189	238	249	324	386	406	467	706	706
Clothing.....	762	244	358	458	590	649	722	791	881	1,005	1,096	1,504	1,504
Personal care.....	197	77	102	122	143	166	198	212	232	256	268	335	335
Medical and health care.....	310	189	224	230	261	274	295	319	345	350	372	479	479
Smoking and alcoholic beverages.....	338	120	179	214	257	298	344	378	387	389	453	550	550
Travel and transportation.....	1,202	495	662	783	946	1,063	1,242	1,223	1,466	1,614	1,712	2,316	2,316
Automobile (and truck).....	999	285	407	573	674	827	900	1,038	1,223	1,614	1,712	2,316	2,316
Purchase.....	458	119	178	244	272	339	407	481	569	645	676	891	891
Operation.....	541	167	229	328	408	483	577	586	660	682	759	890	890
Other.....	202	59	88	90	119	162	204	196	237	287	276	494	494
Recreation.....	313	74	110	152	204	243	280	335	376	394	472	752	752



## Section 6.—Security Price Indexes

Security price indexes measure, through time, the effect of price change on the value of a portfolio of stocks bought and held by a hypothetical investor (as opposed to the more speculative trader). The portfolio represents stocks of Canadian companies listed on the Toronto, Montreal and Canadian stock exchanges. In the case of the mining index, eligible issues are for producing mines only. The number of shares held for each issue is in proportion to the total number of shares outstanding. Prices in the common stock indexes (investors and mining indexes) are Thursday's closing quotations each week, averaged over weeks. For the monthly preferred stock indexes, prices are monthly weighted averages of the daily closing prices in which weights are daily total sales. The indexes express current prices as a percentage of prices in 1961. Monthly and certain weekly indexes appear in the Statistics Canada monthly publication *Prices and Price Indexes* (Catalogue No. 62-002) and a weekly Statistics Canada report gives indexes on a weekly basis for all groups and subgroups.

The investors index is comprised of three major groups, with relative importance indicated by percentage weights as follows: industrials, 67.5; utilities, 18.6; and finance, 13.9. Each major group is further divided into industry subgroups corresponding to the standard industrial classification. The mining index is composed of two groups: base metals with a weight of 64.6 p.c. and golds with a weight of 35.4 p.c. The index of preferred stocks is not divided into component groups.

### 17.—Index Numbers of Common and Preferred Stocks, 1961-71

(1961=100)

Year and Month	Investors Index				Mining Index <sup>1</sup>	Preferred Stocks <sup>1</sup>
	Total	Industrials	Utilities	Finance		
1961.....	100.0	100.0	100.0	100.0	100.0	100.0
1962.....	96.4	96.6	97.9	94.3	103.7	101.5
1963.....	103.1	103.4	108.1	96.4	98.3	104.6
1964.....	120.8	125.9	122.2	98.9	109.3	105.8
1965.....	132.8	139.8	136.3	100.7	122.5	105.1
1966.....	125.3	132.9	129.4	89.9	121.1	94.1
1967.....	131.3	140.4	133.4	92.4	110.9	89.9
1968.....	135.2	143.7	131.8	104.1	119.5	79.9
1969.....	149.8	157.7	142.0	126.4	127.3	77.5
1970.....	137.7	145.5	126.3	118.1	113.5	66.5
1971 January.....	146.2	151.6	147.0	122.2	107.7	71.3
February.....	146.7	151.8	146.8	124.4	111.3	70.9
March.....	149.5	154.0	148.4	132.5	115.2	70.0
April.....	153.1	157.1	152.5	137.3	120.4	70.5
May.....	148.5	151.6	148.1	136.7	113.9	69.1
June.....	150.6	153.7	148.4	141.5	109.7	69.5
July.....	150.0	153.0	147.9	141.2	109.8	69.8
August.....	148.2	151.0	145.8	140.8	107.1	68.9
September.....	149.4	151.7	146.5	144.9	103.5	69.0
October.....	139.3	140.1	140.0	137.3	88.1	65.6
November.....	137.9	137.8	139.2	139.4	84.3	64.7
December.....	150.0	150.1	148.8	154.2	90.4	66.7

<sup>1</sup> Not included in Investors Index.



## CHAPTER XXI.—FOREIGN TRADE

### CONSPECTUS

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*The interpretation of the symbols used in the tables throughout the Year Book will be found on p. vii of this volume.*

The subject of foreign trade covers more than the treatment of exports and imports of commodities, important though this is. In its broader sense, foreign trade is made up of the total international interchange of goods, services, securities and other financial transactions, all of which are presented in their appropriate relationship in this Chapter and in Section 5 of Chapter XXIII. Part I contains specially prepared information on the Canada-United States Automotive Products Agreement—its origin and objectives. Part II gives detailed statistics of total foreign trade. Part III outlines the various ways in which the Federal Government promotes and encourages trade relationships, and contains a brief review of the Canadian tariff structure. Part IV contains a review of the extent of travel between Canada and other countries in 1970, with estimates of the amount of money expended for that purpose.

### PART I.—THE CANADA-UNITED STATES AUTOMOTIVE PRODUCTS AGREEMENT\*

The Canada-United States Automotive Products Agreement was signed by the Prime Minister of Canada and the President of the United States at Johnson City, Texas, on Jan. 16, 1965. The Agreement set forth three objectives: (1) creation of a broad market for automotive products within which the full benefits of specialization and large-scale production can be achieved; (2) liberalization of United States and Canadian automotive trade in respect to tariff barriers and other impediments with a view to enabling the industries of both countries to participate on a fair and equitable basis in the expanding total market of the two countries; and (3) development of conditions in which market forces may operate effectively to attain the most economic pattern of investment, production and trade.

\* Prepared (December 1971) by W. M. MacLeod, Chief, Research and Analysis Section, External Trade Division, Statistics Canada.

Canada granted duty-free entry to specified motor vehicles and original equipment parts imported by Canadian manufacturers by Order in Council effective Jan. 18, 1965. The Automotive Products Trade Act of 1965, enacted by the United States Congress and approved on Oct. 21, 1965, authorized duty-free importation into the United States of certain Canadian motor vehicles and original equipment parts. The President proclaimed the entry into force of the tariff modifications retroactive to Jan. 18, 1965.

What factors led government authorities to fashion this agreement? What progress was made toward reaching the objectives announced? What was the position of the automobile industry in the Canadian economy? An examination of the Canadian industry and earlier tariff policies may disclose part of the answers to these questions.\*

### The Start of the Industry

The earliest Canadian-built motor vehicle was, probably, an electric car made in Toronto in 1893. The Ford Motor Company of Canada was formed in Windsor in 1904 by Canadian businessmen with exclusive rights to manufacture and sell Ford cars in all of the British Empire outside of the British Isles, but production at first was confined to assembling bodies and wheels on chassis imported from Detroit. The McLaughlin Motor Car Company was created in Oshawa in 1907 to use the Buick engine in the McLaughlin car designed by the McLaughlin brothers. In 1915 the company acquired Canadian rights to the Chevrolet, and in 1918 the two McLaughlin companies were merged into General Motors of Canada. Studebaker entered the Canadian market in 1910 with the acquisition of an assembly plant at Windsor operated by the Everett-Metzer-Flanders Company. By 1910, eight plants with 2,400 employees were manufacturing automobiles in Canada.

### Tariff History Before 1960

Early automobile imports to Canada faced the same 35-p.c. tariff as carriage imports. Although Canada had neither an established industry nor a large potential domestic market, protection granted the industry fell short of that given in the United States and in Europe. In 1915 the typical automobile tariff was the 45-p.c. rate of United States and of France. Britain, although separated by an ocean from the United States, imposed a tax of 33½ p.c.

The tariff stood at 35 p.c. until 1926, when political pressure for free imports brought a drop to 20 p.c. for cars valued up to \$1,200, and to 27 p.c. for cars valued over \$1,200. Difficulties encountered by the industry about this time led to several tariff adjustments. They included a system of home consumption drawbacks where the Canadian manufacturer had a 50-p.c. Empire content in his factory output.

In 1931 the tariff was altered to a 30-p.c. duty on cars valued between \$1,200 and \$2,100, and 40-p.c. on cars valued over \$2,100. Further, maximum discount on cars for duty purposes was limited to 20 p.c. of list prices. In 1936, after a few months of a schedule based on value, a 17½-p.c. rate was set, with provision for raising it to 22½ p.c. when it could be established that imports materially affected domestic production. In addition, the arbitrary basis for duty valuation was dropped and a 3-p.c. import tax substituted.

Free importation of parts not capable of economic manufacture in Canada was allowed; however, a tariff providing reasonable protection applied when substantial employment under relatively economic production seemed possible. Tariff revisions in 1936 consolidated automotive parts into several specific tariff items (primarily items 438-b, c, d and e)

\* For further discussion, see Carl E. Beigie, *The Canada-U.S. Automotive Agreement: an Evaluation*, Montreal, 1970; H. E. English, *The Canadian Banker*, Summer 1965; Harry G. Johnson, *Canadian Journal of Economics and Political Science (CJEPS)*, May 1963 and *The Business Quarterly*, Spring 1964; Kathryn A. Morisse, *Federal Reserve Bulletin*, November 1969; Paul Wonnacott, *CJEPS*, February 1965; Paul and R. J. Wonnacott, *CJEPS*, May 1967; Sun Life Assurance Company, *The Canadian Automotive Industry*, September 1956; United States Senate Committee on Finance, *Annual Report of the President to the Congress on the Operations of the Automotive Products Trade Act of 1965*, Mar. 1967, May 1968, July 1969, November 1970; United States House of Representatives, *Message from the President of the United States Transmitting a Special Report on the Joint Comprehensive Review of the United States-Canada Automotive Products Agreement* (Doc. No. 379), Sept. 4, 1968.

and permitted dropping the old home-consumption drawbacks. The Empire content requirements were revised to permit duty-free importation of a broad list of automotive parts, provided: (1) parts concerned were of a class or kind not made in Canada; (2) manufacturers met Empire content equal to 40 p.c. of factory cost of automobile output (excluding duties and taxes) if factory production was less than 10,000 cars; 50 p.c. for production between 10,000 and 20,000; and 60 p.c. for production over 20,000. Truck manufacturers received the same privileges, with maximum Empire content set at 50 p.c. with output over 10,000 vehicles.

The principle that "volume was the key to the amount of Canadian manufacture that could be undertaken economically" was established in the 1936 revisions. Two years later the Empire content of factories producing over 20,000 cars was set at 65 p.c.; this held until civilian production of cars stopped in 1942. Maximum requirements went back to 60 p.c. four years later. At the same time, some of the technical factors in calculating content were adjusted in line with changes in Canadian and American costs that had taken place.

The secondary tariff protection given automotive parts manufacturing through Empire (Commonwealth) content provisions was considered vital to developing parts fabrication in the domestic industry. The customs tariff, including Empire content requirements and tariff preferences in Empire markets, helped develop the Canadian automotive parts industry. The content revisions in 1936 stimulated the manufacturing of additional automotive parts in Canada. In order to make the 60-p.c. content, manufacturers awarded contracts in Canada. Furthermore, Canadian subsidiaries of American firms found it easier to raise expansion capital and in some instances displaced former American sources of supply.

### Production, Imports and Exports in the Early Years

Table 1, giving aggregate figures of production, imports and exports of motor vehicles from 1904 through 1964, shows the early development of car and truck production followed by the expansion of the 1920s in production, in exports reflecting tariff advantages for Canadian vehicles over American vehicles in Empire countries, and in imports following the reduction of tariffs. The figures show the severe contraction of the depression years in production with the industry operating in 1932 at about 15-p.c. capacity, in exports facing depressed markets, fluctuating exchange rates and arbitrary customs valuations, and in imports met by a change in the basis of duty valuation noted earlier which increased effective protection against United States imports. Although production recovered in the late 1930s and exports comprised one third of automobile production and two fifths of commercial vehicle production, the lower level of tariff protection forced smaller manufacturers like Studebaker, Hudson and Packard to withdraw from Canada and closed down car manufacturers like Graham-Paige, Willys-Overland, Durant Motors, Dominion Motors and Hupp Motor Car as well as truck builders like Thornycroft, Leyland Motors and Federal Truck. Conversion of the industry to producing military vehicles took place as motorized equipment was demanded for Commonwealth forces.

In the decade following the War, production expanded with peacetime requirements. Early postwar car output was confined to General Motors, Ford and Chrysler; however, Studebaker started assembly work by 1947. Exports in this period rose at first with the shortage of vehicles at the end of the War, but lack of foreign exchange and rebuilding of British and European automobile industries made the early surge temporary. Imports made up a high percentage of the Canadian market in the early postwar years. Imports of British vehicles displaced American imports, which fell from 85 p.c. of foreign supply in 1947 to under 4 p.c. in 1950. However, medium- and high-priced American car imports increased sharply in the next five years and accounted for over one half of car imports in 1955; West German Volkswagens were introduced in this period. The record for the five-year period ended with 1960 shows a drop in production, a sharp fall in exports approximating the experience of the depression years, and a great surge in imports.

## 1.—Production, Imports and Exports of Motor Vehicles, 1904-64

(Thousands of units)

SOURCE: Motor Vehicle Manufacturers' Association, *Facts and Figures of the Automotive Industry*, 1970 ed.  
ORIGINAL SOURCE: Statistics Canada (Catalogue Nos. 42-209, 42-002, 65-004 and 65-007).

Period	Passenger Cars	Commercial Vehicles	Total	Percentage Period-to-Period Change
PRODUCTION				
1904-20.....			228.8	...
1921-25.....	532.0	77.0	609.0	166.2
1926-30.....	835.8	206.0	1,041.8	71.1
1931-35.....	397.8	101.1	498.9	-52.1
1936-40.....	623.5	290.7	914.1	83.2
1941-45.....	110.7	856.5	967.2	5.8
1946-50.....	903.6	472.4	1,376.0	50.5 <sup>1</sup>
1951-55.....	1,589.5	550.3	2,139.8	55.5
1956-60.....	1,639.7	367.3	2,007.0	-6.2
1961-64.....	1,840.1	354.4	2,194.5	9.3
IMPORTS				
1904-20.....	83.7	..	..	...
1921-25.....	49.3	5.3	54.6	...
1926-30.....	158.5	22.0	180.5	230.6
1931-35.....	14.9	4.2	19.0	-89.5
1936-40.....	70.7	10.6	81.3	327.9
1941-45.....	4.1	5.6	9.7	-88.1
1946-50.....	188.3	26.7	214.9	164.3 <sup>1</sup>
1951-55.....	217.5	39.9	257.5	19.8
1956-60.....	575.8	63.1	638.9	148.1
1961-64.....	353.6	32.0	385.7	-39.6
EXPORTS				
1904-20.....	93.4	..	..	...
1921-25.....	204.1	45.3	249.4	...
1926-30.....	242.9	114.4	357.4	43.3
1931-35.....	113.8	40.7	154.4	-56.8
1936-40.....	183.2	138.7	321.9	108.5
1941-45.....	17.9	722.5	740.4	130.0
1946-50.....	133.8	130.2	264.0	-18.0 <sup>1</sup>
1951-55.....	126.1	89.0	215.1	-18.5
1956-60.....	70.7	17.3	88.0	-59.1
1961-64.....	75.2	27.4	102.6	16.6

<sup>1</sup> Change from 1936-40 to 1946-50.

## Position of the Industry in 1955

By 1955, the Canadian automotive industry comprised three major automobile and truck manufacturers, three independent automobile manufacturers (one also producing trucks), one large independent truck manufacturer, a number of small bus and specialty truck manufacturers, and some 400 firms fabricating automotive parts and supplying automotive products. It included as well manufacturers' dealers. Other parts of the industry were importing and servicing motor vehicles. About 20 p.c. of retail sales was related to purchase or use of motor vehicles. The ratio of exports to imports for automotive products was affected by the fact that "United States firms, instead of exporting cars to Canada as they once did, have simply located their parts and assembly plants there". Only about 5 p.c. of the industry was Canadian-controlled in 1955.

With total exports of goods and services amounting to some 21 p.c. and imports to some 23 p.c. of the gross national product in 1955, and with most manufacturing industries being heavy net importers, Canadian public policy recognized the importance of developing the industry in Canada and stimulating export trade and import substitution of automotive products. The automotive industry study that was prepared for the Royal Commission on Canada's Economic Prospects (the Gordon Commission) noted the identification problem for the parts industry. Official coverage was limited to firms producing metallic automotive parts; however, firms producing automotive castings and forgings were classified elsewhere. Again, some captive industry facilities were classified under vehicle manufacturers rather



than parts. The study estimated the output of the broader list of automotive supplies in 1953 at some \$526,000,000, allowing for metallic parts production by other firms and output of such major non-metallic items as tires and tubes (\$120,000,000), glass and brake linings.

### The Bladen Plan

Amendments to the Tariff Act of 1936 established a basic rate of  $17\frac{1}{2}$  p.c. on vehicles and on parts; however, engines and automatic transmissions were subject to a rate of 25 p.c. For a long list of products generally used in the *parts* industry, entry was free where the item was of a class or kind not made in Canada. If the rate was  $17\frac{1}{2}$  p.c. and if half of the parts comprised duty-free imports, the degree of protection to Canadian content was 35 p.c. Again, for a long list of items generally used in *vehicle* manufacturing entry was free, provided: (1) the item was of a class or kind not made in Canada, and (2) a minimum proportion of the factory cost of production took place in the Commonwealth (in effect, Canada). This increased vehicle production protection above the  $17\frac{1}{2}$ -p.c. tariff rate to a degree depending on the proportion of cost that could be imported duty-free. This system of protection promoted economic inefficiency where the car maker produced or bought in Canada some components at excess cost, and other components that could be produced at a moderate excess cost were not produced because the industry was encouraged to produce parts not eligible for conditional free entry or where the tariff rate was below the standard  $17\frac{1}{2}$  p.c.

The export surplus in motor vehicle trade that Canada enjoyed in the period before World War II shifted after the War to an import surplus. The answer to the problem of creating an efficient and competitive Canadian industry was considered to be the enlargement of the market to use economies of large-scale production—economies of specialization by re-allocation of the product mix, and economies of scale by lowering average costs of particular products. The idea of integration on a continental scale covered both types of economies.

Dean Bladen recommended in his Royal Commission on the *Automotive Industry Report 1961* an "extended content" plan designed to lead to further integration of the industry. The Commissioner proposed that *all* motor vehicles and parts be admitted free of duty where the content requirements were met, and that exports of parts be included in the calculation of Canadian content.

One critic maintained that the protective effect of the tariff was not measured solely by the extent to which the domestic price of the finished product to consumers rose over the world market price; remission of duties on imported inputs in exchange for increased exports of domestic products was really an increase in protection to domestic producers at the expense of domestic consumers and taxpayers.

Dean Bladen's unimplemented extended-content plan would have worked toward lower-cost Canadian production by abolishing duties on specific parts (those dutiable even on fulfilment of content requirements). By allowing producers to count exports as Canadian production, it would have replaced high-cost Canadian production with lower-cost Canadian production. Although motor vehicle manufacturers both buy parts and sell vehicles and the subsidy would be paid to a different division of the company from the one actually buying the parts, the plan was criticized as implicitly subsidizing exports of parts. With a 60-p.c. content requirement and a  $17\frac{1}{2}$ -p.c. tariff, the export subsidy would have been  $29\frac{1}{8}$  p.c.

### Automobile Tariffs of 1962 and 1963

Changes in tariffs on automobiles and parts introduced in late 1962 and 1963 brought export incentives into force. The October 1962 change was the announcement that the 25-p.c. most-favoured-nation tariff (applying to the United States, Continental Europe and Japan) on automatic transmissions—which had been suspended—would be reinstated but recovery of the 25-p.c. duty on transmissions and engine blocks (up to 10,000 per manufacturer) could be earned by the excess of Canadian content of parts exported over exports in the year ended Oct. 31, 1962. The October 1963 change went beyond the engine and transmission plan by allowing recovery of duties on all imports of vehicles and original

equipment parts where the Canadian content of exports of vehicles and parts exceeded exports in the year ended Oct. 31, 1962. This applied only to companies with major Canadian assembly plants.

The new policy adopted by the Federal Government in 1962 and extended in 1963 differed from the Bladen Plan. While the 1962 tariff followed the Bladen Report by providing subsidies for parts exported only and also stipulated remission of duty only on automatic transmissions and engines, the 1963 tariff extended the subsidy to both parts and vehicles exported and allowed duty remission on all original equipment parts and motor vehicles. Again, the Bladen Plan for changing the existing system of content protection with more volume steps, and average content requirements increasing with production at a diminishing rate, was not followed, but arrangements for subsidizing additional exports by remission of duties was added to the existing system. While the car manufacturer could lower costs by getting duty remission on parts imported and re-allocating parts made or bought in Canada, he could not use the export of a low-cost part on a large scale to satisfy content, and import other parts duty-free as under the Bladen Plan. But the manufacturer might export parts beyond the value of dutiable parts imported and use the credit to import parts duty-free and, in this way, obtain the help offered by the Bladen Plan. Further, where the Bladen Plan would have subsidized parts purchased by non-resident sellers in Canada, the new policy was confined to established (American) producers.

### Features of the 1965 Automotive Agreement

The Bladen recommendations and the changes in the automobile tariff introduced in 1962 and 1963 raised issues of great complexity and much of the economic analysis was confined to the odd allocation effects of those policies and the scope for increased protection. The 1965 Agreement appeared to be free of such implications. The objectives of the 1963 policy were: (1) to increase production and create new employment in Canada; (2) to improve Canada's balance of payments; and (3) to give producers of parts and vehicles an incentive to achieve longer production runs and a greater degree of specialization. However, the policy moves of 1962 and 1963 were interpreted in some areas as export bounties, proscribed in the General Agreement on Tariffs and Trade. Some American parts manufacturers forced an investigation by the Treasury Department which would have led to countervailing duties had the enquiry found the duty-remission policy was an export bounty in American law.

The President of the United States in a letter to the President of the Senate and the Speaker of the House of Representatives clarified this view of the origin of the agreement:

The automotive producers of the United States and Canada make up a single great North American industry. The same kinds of cars, using the same parts, are produced on both sides of the border, in many instances in factories only a few miles apart. Over 90% of the automobiles sold in Canada are assembled by firms owned in part or in whole by United States companies. The men and women who work in the plants on both sides of the border are members of the same international union.

Tariffs and other restrictions involving Canada-United States trade in automotive products have been the cause of significant inefficiency in this great industry. Canadian plants produce a great variety of cars, essentially identical with those made in far larger numbers in the United States. Because the Canadian market is relatively small, production runs have been short, and costs and prices have been high. High costs and prices, in turn—supported by the tariff and other restrictions—have contributed to keeping the market small.

Historically, Canada's share in North American automotive production has lagged far behind her share in automotive purchases. In 1963, in an attempt to increase its share of the North American market, the Canadian government put into effect a plan, involving the remission of tariffs, which was designed to stimulate automotive exports. A number of United States manufacturers, believing they would be injured by the plan, called upon this Government to impose countervailing duties. In all probability, such action would have invited retaliation. We were faced by the prospect of wasteful contest of stroke and counter stroke, harmful to both Canada and the United States, and helpful to neither. Our broader good relations with our Canadian friends would have suffered serious strain. To avoid such a dismal outcome, our two governments bent every effort to find a rational solution to the problem of the divided industry. The Automotive Products Agreement that the Prime Minister and I signed in January is the result of our joint labors.

The agreement will benefit both countries. We will have avoided a serious commercial conflict. Canada will have achieved her objective of increasing her automotive production. United States manufacturers will be able to plan their production to make most efficient use of their plants, whether in Canada or the United States. They will save the price of the tariff, and, over the longer run, we will benefit from the faster growth in the Canadian market which lower prices will make possible.

The Agreement enabled anyone in the United States to import cars and original equipment parts free of duty from Canada. This eliminated an American duty of 6½ p.c. on cars and 8½ p.c. on parts and trucks. The Canadian Government eliminated tariffs on similar products but only on imports by qualified automobile manufacturers. (Individuals in Canada who import new automobiles from the United States are assessed 15 p.c. duty.) This meant dropping a tariff of 17½ p.c. on cars and of 17½ p.c. to 25 p.c. on most parts. Duty-free entry did not apply in either country to various "special purpose" vehicles, to replacement parts, or to tires and tubes not mounted on new cars. Canada extended duty-free privileges to all countries but the United States confined the privilege to Canada alone.

Both countries attached content restrictions. Under Annex B of the Agreement the United States required that 50 p.c. of the value of all parts and, after 1968, 50 p.c. of the value of cars imported from Canada must be of North American content. Until 1968, the 50 p.c. applied only to chassis while 40 p.c. of the rest of the value of the complete car must be of North American content. Thus, overseas producers wishing to establish production facilities in Canada had to go beyond assembling cars.

Under Article II (a) and Annex A of the Agreement, Canada gave duty-free entry to qualified manufacturers who were required to maintain at least the same ratio of their production of vehicles in Canada to their sales in Canada as in the model year 1964 or not, in any event, less than 75 p.c., and also maintain in automotive production a Canadian value added at least equal to that attained in vehicles of the same class in model year 1964 (ended July 31, 1964). The term "Canadian value added" denotes the value of Canadian materials, services, labour and capital. It is about equivalent to manufacturer's selling price less the cost of imported materials and parts.

In arrangements with the Government of Canada, separate from and without legal effect on the Agreement, Canadian vehicle manufacturers in 1965 undertook, in addition, to increase by the 1968 model year, which ended July 31, 1968, the dollar value of Canadian value added in vehicles and original parts by \$260,000,000 (pro-rated among the companies) over that achieved in the model year 1964. The larger commitments included in the \$260,000,000 were: General Motors, \$122,000,000; Ford, \$74,200,000; Chrysler, \$33,200,000; and American Motors, \$11,200,000. They also agreed to increase year-by-year Canadian value added by an amount equal to 60 p.c. of the growth of automobile sales in the Canadian market (50 p.c. in the case of commercial vehicles). These special provisions were made to safeguard the smaller Canadian industry, to ease it through the adjustment period, and to bring into line the Canadian share of North American production with the Canadian share of the North American market.

The ratio of production to sales condition permitted specialization based on tariff-free exchange, allowing Canada to concentrate on few models, working with a longer production run of these models for export, and importing other models dropped from Canadian production. Gains in efficiency from economies of scale might be expected. The second condition of the Agreement gave some protection for Canadian manufacture of parts. While the first condition allowed a rapid specialization in Canadian assembly of cars, the second condition confined specialization in parts to Canadian parts going into Canadian-produced cars. Specialization within parts, such as batteries, could follow from greater-volume orders. In the view of some economists, these two conditions, by permitting specialization and imposing no further quantity restraints than existed under the pre-1962 tariffs, were acceptable from a free-trade viewpoint.

With respect to the letters of undertaking, the 60-p.c. Canadian content provision imposed no further restraint than under the pre-1962 tariffs. While the \$260,000,000-undertaking, less than 20 p.c. of Canadian automotive production in 1964, might increase



excess costs (the excess cost of producing in Canada over cost of importing duty-free), costs could drop by duty-free exchange and specialization allowed.

The United States Department of Commerce estimated in 1965 that the United States automotive export surplus with Canada could be maintained at the \$500,000,000 (U.S.) level existing prior to the Agreement if North American automotive vehicle sales in Canada increased at an annual rate of 8 p.c.—a rate consistent with the high Canadian growth rates prevailing during the previous five years. The rate of growth of the Canadian market, the share held by third countries, and changes in net exports from Canadian automotive producers to third countries affect the net automotive trade position of Canada with the United States. American concern has been expressed that the growth in North American vehicle sales at the forecast rate did not materialize.

Article IV of the Agreement stipulated that, not later than Jan. 1, 1968, the two Governments should jointly undertake a comprehensive review of the progress made toward achieving the objectives set forth. During this review, the Governments should consider further steps for the full achievement of these objectives. Article VII specified that the Agreement should be of unlimited duration; however, each Government could terminate the Agreement on a year's notice to the other Government.

### **Trade, Production, Employment, Prices and Investment, 1964 to 1970**

Exchange of automotive products between Canada and the United States expanded rapidly with the removal of trade barriers and reorganization of production facilities under the Agreement. Total two-way trade soared from \$796,000,000 in 1964 to \$6,946,000,000 in 1969, levelling off in 1970 at \$6,560,000,000 with the economic slowdown and severe General Motors strike. The balance of automotive trade moved from a deficit of \$602,000,000 in 1964 to some \$75,600,000 in 1969 (and in the special circumstances of 1970 swung from a deficit to a surplus.) This reflected a turn-around from a small deficit in trade in finished vehicles to a substantial surplus counteracting an increasing Canadian deficit with the United States in the exchange of parts and accessories.

Expansion of automotive exports southbound from 1964 to 1970 accounted for about 52 p.c. of the gain in total domestic exports to the United States. The increase in automotive imports from the United States accounted for 52 p.c. of the rise in imports from that country. On the other hand, automotive exports to and automotive imports from the rest of the world represented some 8 p.c. of the increase in Canadian domestic exports outside the United States market and about 14 p.c. of the increase in value of imported supplies from other countries.

Production gains also have been noteworthy; the volume of Canadian motor vehicle output rose from 671,000 units in 1964 to top the 1,000,000-mark in 1968 at 1,180,000 units, and reached a high of 1,353,000 units in 1969. The increase in production was highest in 1965 and 1968 when the stimulus of the Agreement coincided with strong demand. Canadian producers exported output of particular lines to the United States, and replaced production of other lines with imports. Table 3 shows vehicle sales of North American make failed to keep pace with output; sales of overseas make, however, in the latest four years grew at a faster rate than Canadian output.

Employment increased by some 31 p.c. to average over 90,000 in 1969 but dropped off in 1970. Cited productivity gains in the automotive industry helped narrow the gap between Canadian and United States performance, and had a far-reaching impact on the Canadian economy. Wage rates also advanced. Wages in assembly operations had been about 23 p.c. below the level in United States plants in 1964 but were only some 8 p.c. lower in 1970. The major automobile producers signed agreements in 1968 granting their workers nominal parity with United States workers by June 1, 1970.

Resulting in part from rising productivity, the wholesale price differential for cars sold in the United States and Canada decreased. The spread on the same four-door, six-cylinder car, measured at factory wholesale prices, was 9.6 p.c. in the model year 1964 and 3.9 p.c. in the model year 1970. Changes in domestic sales taxes worked in the other direction. The



Canadian federal sales tax was raised from 11 p.c. to 12 p.c. in 1968 while the United States excise tax was reduced from 10 p.c. to 7 p.c. in 1965 and eliminated on Aug. 15, 1971. Thus, the suggested retail price spread in 1970, at 7.2 p.c., was only some 2.7 percentage points below the 1964 spread versus the 5.7 percentage point drop in the factory list price.

Since 1964 the industry has recorded an average yearly outlay of \$166,000,000 on new fixed-capital formation. The major motor vehicle producers also make large purchases from a wide range of ancillary industries that provide such items as machinery, tires and tubes, paints and chemicals, and metals.

The multiplicity of uses to which external trade statistics can be put demands careful attention to the classification adopted and the degree of commodity detail required. A commodity classification is required to facilitate analysis of trade in terms of the country's economic problems, in sufficient detail to satisfy industrial and commercial needs, conveniently related to available statistics of other countries and, in particular, to domestic production, consumption and inventory statistics and in detail usable alongside tariff statistics. However, the statistician or customs officer must calculate a trade-off between statistical demand and supply. Regard must be paid to the problem that traders and their agents have in providing very detailed commodity descriptions, a decided irritant when consignments are mixed. Inevitably, serious statistical problems have arisen in compiling United States and Canadian automotive trade figures. Because import figures of vehicles and original equipment parts are identified by tariff item in both countries, a joint sub-group examining the problem concluded that the most comprehensive measure of total automotive trade would be the import statistics of the two countries. Table 2 covers vehicles and parts as defined in division 58 of the Canadian export and import commodity classifications, and other parts and accessories as identified in Canadian and American tariff classifications.

## 2.—Canadian Trade in Automotive Vehicles and Parts with All Countries, with the United States and with Other Countries, as compared with Total Trade, 1964-70

(Millions of dollars)

SOURCE: Statistics Canada, *Estimates of Canada's Foreign Trade in Motor Vehicles and Parts, 1964-70*, Special Tabulation, Nov. 17, 1971; revised Feb. 24, 1972.

Year	All Countries			United States			Other Countries		
	Total	Automotive <sup>1</sup>		Total	Automotive <sup>1</sup>		Total	Automotive <sup>1</sup>	
		Vehicles	Parts		Vehicles	Parts		Vehicles	Parts
DOMESTIC EXPORTS									
1964.....	8,094.2	82.2	95.2	4,271.1	26.3	70.5	3,823.1	55.9	24.7
1965.....	8,525.1	183.2	172.8	4,840.5	90.6	140.7	3,684.6	92.6	32.1
1966.....	10,070.6	602.9	432.1	6,027.7	492.9	389.4	4,042.9	110.0	42.7
1967.....	11,120.7	1,215.2	565.4	7,088.5	1,115.0	512.5	4,032.2	100.2	52.9
1968.....	13,269.9	1,888.0	908.0	8,941.5	1,740.0	846.5	4,328.4	148.0	61.5
1969.....	14,498.2	2,513.5	1,128.0	10,273.5	2,391.8	1,043.3	4,224.7	121.7	84.7
1970.....	16,401.1	2,388.5	1,228.0	10,579.9	2,227.0	1,140.8	5,821.2	151.5	87.2
IMPORTS									
1964.....	7,487.7	175.6	642.2	5,164.3	75.4	623.4	2,323.4	100.2	18.8
1965.....	8,633.1	295.0	818.8	6,044.8	170.4	798.0	2,588.3	124.6	20.8
1966.....	9,866.4	509.1	1,170.2	7,135.6	398.2	1,136.8	2,730.8	110.9	33.4
1967.....	11,075.2	852.2	1,405.7	8,016.3	738.2	1,370.9	3,058.9	114.0	34.8
1968.....	12,358.0	1,208.3	1,948.6	9,048.4	1,022.0	1,900.6	3,309.6	186.3	47.8
1969.....	14,130.4	1,340.7	2,494.1	10,243.2	1,085.7	2,425.0	3,887.1	255.0	69.1
1970.....	13,951.9	1,224.2	2,312.3	9,917.0	969.4	2,212.8	4,034.9	254.8	99.5

<sup>1</sup> See text above for basis of classification.

**3.—Production and Sales of Motor Vehicles in Canada, 1964-70**

(Thousands of units)

SOURCE: Motor Vehicle Manufacturers' Association, *Facts and Figures of the Automotive Industry*. ORIGINAL SOURCE: Statistics Canada (Catalogue Nos. 42-209, 42-002 and 63-208).

Year	Passenger Cars	Trucks and Buses	Total	Percentage Year-to-Year Change
PRODUCTION				
1964.....	560.7	110.3	671.0	...
1965.....	710.7	144.8	855.5	27.5
1966.....	701.5	200.6	902.1	5.4
1967.....	720.8	226.4	947.3	5.0
1968.....	900.9	279.1	1,180.0	24.6
1969.....	1,035.6	317.3	1,352.9	14.7
1970.....	940.4	253.2	1,193.6	-11.8
SALES CANADIAN AND UNITED STATES MAKE				
1964.....	550.8	106.8	657.6	...
1965.....	633.6	120.2	753.8	14.6
1966.....	627.0	130.6	757.6	0.5
1967.....	605.0	133.3	738.4	-2.5
1968.....	637.4	142.2	779.6	5.6
1969.....	638.3	149.6	787.9	1.1
1970.....	496.5	124.9	621.4	-21.1
SALES OVERSEAS MAKE				
1964.....	65.9	2.4	68.3	...
1965.....	75.1	2.1	77.1	12.9
1966.....	67.8	2.0	69.8	-9.5
1967.....	74.4	2.5	76.9	10.2
1968.....	104.5	5.3	109.8	42.8
1969.....	122.5	7.1	129.6	18.0
1970.....	143.2	9.2	152.5	17.7

**4.—Employment in Canadian Automotive Industries, 1964-70**

(Thousands of employees)

SOURCE: Department of Industry, Trade and Commerce, Mechanical Transport Branch. ORIGINAL SOURCE: Statistics Canada (Catalogue No. 72-002).

Year	Assembling	Parts and Accessories	Motor Vehicles <sup>1</sup>
1964.....	34.3	30.3	69.0
1965.....	40.3	34.1	80.0
1966.....	40.3	38.9	84.9
1967.....	40.7	37.1	84.1
1968.....	41.5	35.4	83.4
1969.....	41.0	38.4	90.4
1970.....	39.1	35.0	82.5

<sup>1</sup> Includes truck body and trailer manufacturers.**5.—Relative Earnings in Canadian and United States Automotive Industries, 1964-70**

(Average hourly earnings)

SOURCE: Statistics Canada (Catalogue No. 72-003) and United States Bureau of the Census, *Statistical Abstract*.

Year	Canadian Vehicles	Canadian Parts	U.S. Vehicles and Equipment	U.S. Vehicles and Equipment	Percentages—	
	(1)	(2)	(3)	(4)	(1) of (4)	(2) of (4)
	\$(Can.)	\$(Can.)	\$(U.S.)	\$(Can.)		
1964.....	2.68	2.47	3.21	3.47	77.2	71.2
1965.....	2.87	2.61	3.34	3.61	79.5	72.3
1966.....	2.94	2.65	3.44	3.72	79.0	71.2
1967.....	3.10	2.78	3.55	3.84	80.7	72.4
1968.....	3.49	3.03	3.89	4.21	82.9	72.0
1969.....	3.71	3.25	4.10	4.43	83.7	73.4
1970.....	4.06	3.52	4.23	4.42	91.9	79.6

### 6.—United States-Canadian Automotive Price Differentials

SOURCE: United States Senate Committee on Finance, *Fourth Annual Report of the President to the Congress on the Operation of the Automobile Products Trade Act of 1965*, pp. 34-36.

Model	Model Price in U.S.		Canadian Price Differential over U.S. Price	
	1964	1970	1964	1970
	\$(U.S.)	\$(U.S.)	p.c.	p.c.
4-Door Sedan, 6-Cylinder—				
Factory list price.....	2,137	2,511	9.6	3.9
Sales/excise tax <sup>1</sup> .....	176	149		
Dealers delivery and handling.....	25	25		
Suggested retail price <sup>2</sup> .....	2,338	2,685	9.9	7.2
4-Door Sedan, 8-Cylinder—				
Factory list price.....	2,520	2,969	9.2	5.3
Sales/excise tax <sup>1</sup> .....	199	165		
Dealers delivery and handling.....	40	40		
Suggested retail price <sup>2</sup> .....	2,768	3,174	9.6	8.5
2-Door Hardtop, 8-Cylinder—				
Factory list price.....	3,995	4,656	30.4	9.6
Sales/excise tax <sup>1</sup> .....	309	255		
Dealers delivery and handling.....	70	50		
Suggested retail price <sup>2</sup> .....	4,374	4,961	29.7	12.3

<sup>1</sup> Canadian sales tax 11 p.c. in 1964-67, and 12 p.c. in 1968-69; U.S. excise tax reduced to 10 p.c. in 1964 and to 7 p.c. in 1965-69. <sup>2</sup> Excludes destination charges, state and local taxes, licence and title.

### 7.—Capital Expenditures by Canadian Automotive Industries, 1964-70

(Millions of dollars)

SOURCE: Department of Industry, Trade and Commerce, Mechanical Transport Branch. ORIGINAL SOURCE: Statistics Canada.

Year	Vehicles		Parts		Total <sup>1</sup>
	New Non-residential Construction	New Machinery and Equipment	New Non-residential Construction	New Machinery and Equipment	
1964.....	22.5	26.4	13.9	45.6	108.3
1965.....	39.8	50.5	17.7	88.9	196.9
1966.....	29.2	27.9	48.1	101.6	206.8
1967.....	37.2	41.3	10.3	61.8	150.7
1968.....	19.2	32.3	7.9	34.0	93.4
1969.....	15.7	24.9	11.9	79.6	132.1
1970.....	..	..	17.0	156.9	215.1

<sup>1</sup> Includes truck bodies and trailer manufacturers.

### Conclusion

The joint comprehensive review of the Agreement began at a meeting in Washington on Dec. 13, 1967. A joint working party was established and meetings were held in Ottawa and Washington over several months. Following a delay, occasioned by the Canadian national election of June 1968 and appointment of new Ministers to several federal departments directly concerned, and further discussion in August 1968, the Joint Review ended. Both Governments concluded that considerable progress had been made toward achieving benefits of broader automotive trade in automotive products. Trade had expanded and production cost economies had been realized with rationalization of production in both countries and especially in Canada. Trade and manufacture of products in related fields had grown and car price differentials had narrowed. Employment in automotive production had increased in both countries and the few dislocations occurring had been dealt with through separate adjustment assistance programs. Although not enough experience had been accumulated under the Agreement to recommend changes, areas of possible improvement had been studied: (1) liberalization of conditions on duty-free entry into Canada; (2) possible amendment of the Agreement to encompass additional products; (3) simplification of customs and other administrative practices; and (4) improvement and reconciliation of trade statistics.

The Governments of the United States and Canada were unable to agree on the specific conditions under which the transitional safeguards on free entry into Canada would be eliminated. Canadian concern with the viability of the smaller Canadian industry, complicated by the subsidiary-parent relationship, has not relaxed to date (December 1971).

United States officials recognized in the Joint Review discussions of product coverage that inventory and identification complications resulted from exclusion of replacement or service parts identical with original equipment parts; however, extension of the Agreement seemed to them to add further administrative and inventory difficulties. The broad market and production integration objectives appeared to rule out special-purpose vehicles on a small scale designed to perform limited objectives. However, snowmobiles and original parts were accorded duty-free entry into the United States as a result of the pact; Canada provided reciprocal duty-free entry retroactive to Nov. 1, 1966. Little interest was expressed by United States officials in extension of the Agreement to tires and tubes not mounted on a vehicle or to dies, jigs, tools, fixtures, etc., which had non-automotive applications. Some steps toward simplification and facilitation of customs administration were noted but no substantial changes were expected. The problem of trade statistics has been noted earlier.

From either a national or a continental viewpoint the impressive result of the Automotive Agreement of 1965 was a gain in welfare, in the loose sense of denoting economic efficiency. Determination of the effect of the Agreement on the distribution of income within and between the two countries would be a complex project. The gain for Canada has been resources devoted to improvement in allocative efficiency and the lead provided by the industry to faster economic growth.

## PART II.—FOREIGN TRADE STATISTICS\*

### Section 1.—Explanatory Notes on Canadian Trade Statistics

**Sources.**—Canadian foreign trade statistics are compiled from information recorded on customs documents received by Statistics Canada from the various customs ports in Canada, supplemented with energy data obtained through other channels. It should be noted that trade figures reflect the physical movements of goods across Canada's national and customs boundaries but do not always represent the financial transactions for changes in ownership of these goods.

**Coverage.**—Total Canadian exports are the sum of domestic exports and re-exports. Domestic exports or exports of Canadian produce include shipments abroad of goods wholly produced in Canada together with exports of previously imported goods which have been changed in form by further processing in Canada. Re-exports or exports of foreign produce include only goods previously included in import statistics which are exported from Canada in the same form as when imported. Minor operations such as cleaning, sorting or re-packing are not considered as changing the condition of imported goods. Following the introduction in January 1964 of the "General Trade" system of compilation, re-exports have also included outward movements of goods previously imported but stored in customs warehouses.

Likewise, imports, as from January 1964, include all goods cleared by customs immediately on arrival in Canada together with goods that are entered into customs warehouses. For earlier years, imports under the "Special Trade" system of presentation included goods cleared immediately on arrival plus goods cleared for consumption out of customs warehouses. This meant that those goods, which crossed the national boundary into and out of customs warehouses without crossing the customs boundary, were excluded.

Certain commodities have, since January 1960, been excluded from both export and import trade statistics but have been published monthly under "Special Transactions—

\* Prepared in the External Trade Division, Statistics Canada.



Non-trade". This category includes commodity movements which either have no international financial implications or are better considered as non-merchandise transactions in the statistics of Canada's balance of international payments. These are: unrefined gold, gold products where the gold content is 80 p.c. or more of the total value, and gold coin, except collections; settlers' effects; private donations and gifts; tourist purchases; goods shipped back and forth across the national boundary by the diplomatic and military personnel of Canada and of foreign countries posted abroad and in Canada, respectively; temporary movements for exhibition or competition, including films for processing; bunker supplies and stores sold to foreign vessels or aircraft in Canadian ports or purchased by Canadian carriers abroad; military grants to NATO member countries; ships of British construction and registry imported for use in Canada, and ships purchased for use as international carriers but not used to carry goods between points in Canada; and generally, all temporary exports and imports and goods merely moving in transit through Canadian territory.

The series "New Gold Production Available for Export", which has been published as a supplement to external trade statistics, is deleted. Being an item of non-merchandise transactions in the current account, it is described in Chap. XXIII, Sect. 5, on the Canadian balance of international payments.

**Valuation.**—The basic source documents require the reporting of exports at transaction values, f.o.b. place of lading (i.e., exclusive of inland freight, insurance, handling and other charges). Declarations denominated in foreign currency are converted to Canadian dollars for publication. The value of goods imported is usually that as determined for customs duty, and the Canadian Customs Act generally requires the valuation of goods f.o.b. point of shipment in the country of provenance. However, continuing effort is made to prevent the inadvertent filtering through during document processing of c.i.f. values, in particular for free goods or goods subject to specific rates of duty.

**Classification.**—Beginning with statistics for January 1961, a new export commodity classification was used, based on the Standard Commodity Classification developed by Statistics Canada as a tool for integrating statistical series derived from different sources. Whereas the classification previously used classified commodities primarily according to the material of which they were chiefly composed, the new classification places commodities in sections mainly according to stage of processing and purpose, as follows: Live Animals; Food, Feed, Beverages and Tobacco; Crude Materials, Inedible; Fabricated Materials, Inedible; End Products, Inedible; and Special Transactions—Trade. For most of the commodities of major importance in Canadian exports, the classes of the new commodity classification are substantially identical with those of its predecessor.

As from January 1964, a new commodity classification was also introduced for import statistics, based on concepts similar to those embodied in the export commodity classification, so that there has been a closer correspondence between the two sets of statistics. The import commodity classification is more extensive than the export commodity classification and in its new form gives a comprehensive coverage of those commodities which constitute the bulk of Canada's import trade. The grouping system employed in the new classification also makes easier the identification of other commodities which may merit separate specification; continuing study is being made to keep the classification both meaningful and up to date in the dynamic environment in which commodities entering international trade are becoming more sophisticated and complex.

Trade is credited to countries on the basis of consignment. For exports from Canada, the country of consignment is that country to which goods are, at the time of export, intended to pass without interruption of transit except in the course of transfer from one means of conveyance to another. For imports into Canada, the country of consignment is the country from which the goods came without interruption of transit except in the course of transfer from one means of conveyance to another. This is not necessarily the country of actual origin, since goods produced in one country may be imported by a firm in another

country and re-sold to Canada; in such cases the second country is the country of consignment to which the goods are credited. There is one exception to this rule; an attempt is made to classify by country of origin goods produced in South America, Central America, Bermuda and the Antilles and consigned to Canada from the United States. The effect of this procedure is to reduce slightly the imports credited to the United States and to increase those credited to South and Central American countries.

The country sub-totals include trade with Commonwealth and other countries (the Republic of Ireland and the Republic of South Africa) entitled to Preferential rates of duty. Trade with Alaska and Hawaii is included in the United States statistics in all the relevant tables of this Chapter, even though these two areas were separately classified prior to January 1959 and January 1960, respectively.

### Discrepancies in Trade Statistics Between Canada and Other Countries.—

Canada's statistics of exports are rarely in exact agreement with the import statistics of its customers and parallel differences occur with Canadian imports. Major factors contributing to these discrepancies include:—

- (1) Differences in the system of valuation used by Canada and those of other countries, with respect to the treatment of transportation charges, fair market and transaction values.
- (2) Differences in the statistical treatment of special categories of trade, such as military supplies, government-financed gifts of commodities, postal and express shipments, tourist purchases, bunkers and warehouse areas.
- (3) Differing definitions of territorial areas.
- (4) Differing systems of crediting trade by countries, notably the consignment system used by Canada and the actual origin or ultimate destination system in use in some other countries.
- (5) Differences in the time at which trade is recorded in the statistics of partner countries caused by the time required for goods to move from one country to another.

## Section 2.—Total Foreign Trade

In considering the figures in Sections 2 to 5, it should be noted that exports and imports of gold are excluded from among other commodities in all tables. There are, in the main, three sets of tariff rates in operation in Canada: British Preferential, Most-Favoured-Nation and General Tariff as described at pp. 1105-1106. Generally, the Canadian tariff imposes duties on a greater proportion of manufactured goods than of raw or semi-processed products.

### 1.—Value of Total Foreign Trade of Canada, 1956-70

NOTE.—An adjustment has been made for "Special Transactions—Non-trade" to present figures on "general trade system" throughout.

Year	Exports			Imports			Balance of Trade: Excess of Exports (+) Imports (—)
	Domestic	Re-exports	Total	Dutiable	Free	Total	
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
1956.....	4,760,442	73,335	4,833,777	3,292,516	2,254,435	5,546,951	— 713,175
1957.....	4,788,880	95,261	4,884,141	3,223,197	2,250,149	5,473,346	— 589,205
1958.....	4,791,436	102,907	4,894,343	2,952,707	2,097,785	5,050,492	— 156,150
1959.....	5,021,672	118,628	5,140,300	3,143,065	2,365,856	5,508,921	— 368,621
1960.....	5,255,575	131,217	5,386,792	3,048,583	2,434,112	5,482,695	— 95,903
1961.....	5,754,986	140,229	5,895,215	3,115,408	2,653,170	5,768,578	+ 126,637
1962.....	6,178,523	169,190	6,347,713	3,480,282	2,777,494	6,257,776	+ 89,937
1963.....	6,798,529	181,613	6,980,142	3,542,585	3,015,623	6,558,209	+ 421,933
1964.....	8,094,219	209,186	8,303,405	4,034,903	3,452,804	7,487,707	+ 815,698
1965.....	8,525,078	241,599	8,766,677	4,366,849	4,266,800	8,633,148	+ 133,529
1966.....	10,070,627	254,693	10,325,320	4,831,709	5,034,730	9,866,439	+ 458,881
1967.....	11,120,674	299,284	11,419,957	5,096,920	5,978,279	11,075,199	+ 344,759
1968.....	13,269,935	354,078	13,624,013	5,029,260	7,328,722	12,357,982	+1,266,031
1969.....	14,498,224	427,647	14,925,871	5,907,202	8,223,170	14,130,372	+ 795,499
1970.....	16,473,865	419,007	16,892,872	5,909,635	8,030,140	13,939,775	+2,953,097

### Section 3.—Trade by Geographic Region

The tables in this Section provide information about Canada's exports and imports by geographic region and by country.

#### 2.—Trade of Canada with Commonwealth and Preferential Countries, and Other Countries, 1956-70

Item and Year	United Kingdom		Other Commonwealth and Preferential Countries		United States		Other Countries	
	Value	P.C. of Total	Value	P.C. of Total	Value	P.C. of Total	Value	P.C. of Total
	\$'000		\$'000		\$'000		\$'000	
<b>Domestic Exports</b>								
1956.....	811,113	17.0	252,117	5.3	2,803,085	58.9	894,127	18.8
1957.....	720,898	15.1	240,016	5.0	2,846,646	59.4	981,320	20.5
1958.....	771,576	16.1	290,125	6.1	2,808,067	58.6	921,667	19.2
1959.....	785,302	15.7	281,462	5.6	3,083,151	61.4	871,257	17.3
1960.....	915,290	17.4	333,815	6.4	2,932,171	55.8	1,074,300	20.4
1961.....	909,344	15.8	328,854	5.7	3,107,176	54.0	1,409,612	24.5
1962.....	909,041	14.7	331,004	5.4	3,608,439	58.4	1,330,040	21.5
1963.....	1,006,838	14.8	391,526	5.8	3,766,380	55.4	1,633,785	24.0
1964.....	1,199,779	14.8	493,871	6.1	4,271,059	52.8	2,129,510	26.3
1965.....	1,174,309	13.8	502,330	5.9	4,840,456	56.8	2,007,984	23.6
1966.....	1,122,574	11.1	547,420	5.4	6,027,722	59.9	2,372,911	23.6
1967.....	1,169,053	10.5	638,201	5.8	7,088,490	63.7	2,224,930	20.0
1968.....	1,209,567	9.1	593,093	4.5	8,941,501	67.4	2,525,774	19.0
1969.....	1,091,236	7.5	588,858	4.1	10,273,542	70.9	2,544,587	17.6
1970.....	1,465,155	8.9	762,216	4.6	10,652,713	64.7	3,593,781	21.8
<b>Imports</b>								
1956.....	476,371	8.6	220,808	4.0	4,031,394	72.7	818,378	14.7
1957.....	507,319	9.3	239,054	4.4	3,887,391	71.0	839,582	15.3
1958.....	518,505	10.3	210,016	4.2	3,460,147	68.5	861,824	17.0
1959.....	588,573	10.7	241,241	4.4	3,709,065	67.3	970,042	17.6
1960.....	588,932	10.8	281,167	5.1	3,686,625	67.2	925,971	16.9
1961.....	618,221	10.7	292,155	5.1	3,863,968	67.0	994,233	17.2
1962.....	563,062	9.0	318,501	5.1	4,299,539	68.7	1,076,673	17.2
1963.....	526,800	8.0	400,820	6.1	4,444,556	67.8	1,186,033	18.1
1964.....	573,995	7.7	405,850	5.4	5,164,285	69.0	1,343,577	17.9
1965.....	619,058	7.2	372,780	4.3	6,044,831	70.0	1,596,480	18.5
1966.....	644,741	6.5	416,293	4.2	7,135,611	72.3	1,669,794	16.9
1967.....	673,050	6.1	435,291	3.9	8,016,341	72.4	1,950,517	17.6
1968.....	696,085	5.6	452,998	3.7	9,048,372	73.2	2,160,528	17.5
1969.....	790,973	5.6	571,828	4.0	10,243,238	72.5	2,524,333	17.9
1970.....	738,262	5.3	621,239	4.5	9,904,919	71.1	2,675,356	19.2

### 3.—Trade of Canada by Leading Countries, 1970 with Comparable Figures for 1968 and 1969

Rank in—			Item and Country	1968	1969	1970
1968	1969	1970		\$'000	\$'000	\$'000
Domestic Exports						
1	1	1	United States.....	8,941,501	10,273,542	10,652,713
2	2	2	United Kingdom.....	1,209,567	1,091,236	1,465,155
3	3	3	Japan.....	606,787	624,733	810,142
4	4	4	Germany, Federal Republic of.....	228,733	277,382	383,681
6	5	5	Netherlands.....	178,850	184,966	277,181
5	6	6	Australia.....	185,717	163,258	197,751
9	10	7	Belgium and Luxembourg.....	126,648	116,232	189,943
8	7	8	Italy.....	131,210	133,671	183,961
10	11	9	Norway.....	116,559	103,645	178,056
14	8	10	France.....	81,516	128,583	154,201
7	9	11	People's Republic of China.....	163,243	122,891	141,995
11	12	12	India.....	111,255	95,552	129,842
12	13	13	Venezuela.....	102,671	92,902	111,391
15	14	14	South Africa.....	68,341	78,501	104,005
13	40	15	Union of Soviet Socialist Republics.....	88,569	9,071	101,553
16	15	16	Mexico.....	54,589	72,873	91,698
17	18	17	Brazil.....	48,200	50,246	87,387
20	17	18	Spain.....	41,113	55,908	64,506
18	16	19	Argentina.....	48,017	62,315	59,129
19	20	20	Cuba.....	44,988	40,739	58,900
27	28	21	Pakistan.....	29,689	22,142	55,799
21	23	22	Puerto Rico.....	37,811	36,976	48,515
25	19	23	Sweden.....	31,744	41,278	47,735
23	21	24	Jamaica.....	34,378	40,481	46,545
24	22	25	New Zealand.....	31,842	36,976	42,691
66	71	26	United Arab Republic.....	3,242	2,942	37,778
26	24	27	Switzerland.....	31,197	34,239	37,296
28	26	28	Peru.....	22,231	26,234	35,891
22	25	29	Philippines.....	34,546	32,328	30,154
49	46	30	Yugoslavia.....	6,551	8,023	26,917
Totals, 30 Leading Countries.....				12,841,305	14,059,865	15,852,518
Grand Totals, Domestic Exports.....				13,269,935	14,498,224	16,473,865
Imports						
1	1	1	United States.....	9,048,372	10,243,238	9,904,919
2	2	2	United Kingdom.....	696,085	790,973	738,261
3	3	3	Japan.....	360,180	495,704	581,715
5	4	4	Germany, Federal Republic of.....	298,869	354,715	370,931
4	5	5	Venezuela.....	357,862	345,596	339,212
6	6	6	France.....	121,647	151,841	158,486
9	8	7	Australia.....	75,990	96,285	146,147
7	7	8	Italy.....	114,492	141,193	144,973
8	9	9	Sweden.....	78,091	84,506	105,888
11	10	10	Switzerland.....	64,326	83,930	80,831
10	11	11	Netherlands.....	69,052	78,678	78,923
12	12	12	Hong Kong.....	58,354	72,942	78,486
15	15	13	Netherlands Antilles.....	49,658	50,395	54,178
21	19	14	Taiwan.....	34,379	42,456	51,936
13	14	15	Belgium and Luxembourg.....	57,520	60,936	51,695
18	20	16	Brazil.....	38,725	42,128	49,311
17	18	17	Norway.....	39,204	44,895	49,132
14	13	18	Mexico.....	52,167	64,085	47,344
16	17	19	South Africa.....	39,315	45,944	45,702
25	23	20	Austria.....	28,563	38,878	45,614
34	32	21	Nigeria.....	16,966	22,203	44,558
53	21	22	New Zealand.....	18,645	41,182	43,064
19	22	23	India.....	38,304	40,905	40,096
29	29	24	Spain.....	25,626	28,714	34,460
28	24	25	Malaysia.....	25,986	32,824	34,180
23	27	26	Iran.....	33,569	30,176	33,880
27	25	27	Denmark.....	26,393	32,392	30,495
24	26	28	Guyana.....	29,408	31,050	28,770
26	28	29	Czechoslovakia.....	27,367	30,046	27,491
22	16	30	Jamaica.....	33,935	45,978	27,067
Totals, 30 Leading Countries.....				11,959,050	13,664,788	13,467,745
Grand Totals, Imports.....				12,357,982	14,130,372	13,939,775





There are currently about 35,000 bowling alleys in Japan and one third of them are floored with maple bedstock that came fully machined from Canada. Canadian manufacturers also do a lucrative business with Japan in bowling alley pins, which require replacement every nine to twelve months.

#### 4. -Value of Domestic Exports, by Geographic Region and Country, 1963-70

Region and Country	1963	1964	1965	1966	1967	1968	1969	1970
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Western Europe—</b>								
United Kingdom.....	1,006,838	1,199,779	1,174,309	1,122,574	1,169,053	1,209,567	1,091,236	1,465,155
Gibraltar.....	185	110	60	113	41	39	26	21
Ireland.....	10,461	15,072	16,664	14,948	15,645	11,124	13,949	14,348
Malta and Gozo.....	2,313	2,721	1,964	1,643	1,351	814	1,951	1,517
Austria.....	6,826	7,475	9,857	11,600	7,810	6,008	9,067	8,855
Belgium and Luxembourg...	76,493	100,535	128,011	117,505	100,800	126,648	116,232	189,943
Denmark.....	6,811	7,484	9,176	10,802	15,730	15,579	15,010	21,024
Finland.....	7,277	4,458	4,792	7,078	4,661	7,058	7,177	7,898
France.....	63,428	79,433	87,273	84,541	80,608	81,516	128,583	154,201
Germany, Federal Republic of.....	170,969	211,360	189,493	176,800	177,955	228,733	277,382	383,681
Greece.....	7,429	8,013	8,231	9,647	8,629	8,904	10,265	23,965
Iceland.....	347	10,459	10,228	6,492	738	298	385	418
Italy.....	76,761	62,236	93,223	114,787	141,439	131,210	133,671	183,961
Netherlands.....	87,009	101,582	127,766	143,113	176,431	178,850	184,966	277,189
Norway.....	73,398	67,582	82,456	107,014	87,424	116,559	103,645	178,056
Portugal.....	5,859	6,264	5,260	5,228	7,138	6,310	7,039	10,605
Spain.....	20,500	21,235	33,825	36,900	39,623	41,114	55,908	64,506
Sweden.....	20,926	29,922	28,980	36,574	27,808	31,744	41,278	47,735
Switzerland.....	27,247	28,502	27,095	31,010	23,833	31,197	34,239	37,296
Totals, Commonwealth and Preferential Countries.....	1,019,797	1,217,683	1,192,996	1,139,278	1,186,089	1,221,544	1,107,161	1,481,041
European Economic Community.....	474,659	555,147	625,765	636,746	677,234	746,957	840,834	1,188,975
Other countries.....	176,620	191,393	219,901	262,345	223,394	264,771	284,014	400,358
<b>Totals, Western Europe</b>	<b>1,671,076</b>	<b>1,964,223</b>	<b>2,038,663</b>	<b>2,038,369</b>	<b>2,086,718</b>	<b>2,233,271</b>	<b>2,232,010</b>	<b>3,070,374</b>

## 4.—Value of Domestic Exports, by Geographic Region and Country, 1963-70—continued

Region and Country	1963	1964	1965	1966	1967	1968	1969	1970
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Eastern Europe—</b>								
Albania.....	2	10,873	9,471	7,562	5,705	2,793	3,655	4,163
Bulgaria.....	28	19,239	7,364	7,812	37	79	105	3,328
Czechoslovakia.....	13,289	54,230	34,762	5,080	10,970	12,394	3,770	6,872
German Democratic Republic.....	1,262	11,739	15,216	12,311	5,516	1,206	1,846	376
Hungary.....	374	1,910	8,352	3,293	3,500	12,333	2,882	6,888
Poland.....	27,200	62,653	31,565	37,404	25,790	18,240	6,554	15,161
Romania.....	1,275	540	641	685	345	1,212	1,221	3,502
Union of Soviet Socialist Republics.....	150,123	315,943	197,362	320,605	128,663	88,569	9,071	101,553
Yugoslavia.....	17,519	5,443	8,561	3,664	3,484	6,551	8,023	26,917
<b>Totals, Eastern Europe</b>	<b>211,071</b>	<b>482,568</b>	<b>313,294</b>	<b>398,415</b>	<b>184,011</b>	<b>143,378</b>	<b>37,127</b>	<b>168,759</b>
<b>Middle East—</b>								
Bahrain.....	162	151	160	331	82	221	86	76
Cyprus.....	513	193	261	328	307	443	494	901
Qatar.....	246	279	548	409	201	132	158	81
Southern Yemen.....	1	1	193	218	404	66	12	4
Trucial States.....	1	1	66	152	162	445	4,169	301
British Middle East, <i>n.e.s.</i> ...	127	138	2	2	2	2	2	2
Ethiopia.....	139	236	581	842	498	294	257	397
Iran.....	3,568	3,372	3,282	3,795	3,055	6,567	5,225	7,943
Iraq.....	3,376	957	734	887	625	882	2,792	4,184
Israel.....	8,163	9,109	6,261	10,703	6,565	9,827	16,975	14,446
Jordan.....	244	245	306	429	411	300	645	382
Kuwait.....	2,748	934	3,582	3,994	2,890	2,527	1,706	1,031
Lebanon.....	2,365	2,516	2,419	3,134	2,497	3,383	3,524	4,882
Libya.....	690	907	660	695	1,131	826	2,364	3,142
Saudi Arabia.....	3,548	3,133	5,343	5,034	3,635	4,057	3,618	6,662
Somalia.....	22	1	26	8	3	19	34	22
Sudan.....	173	113	120	363	898	2,052	499	1,437
Syria.....	713	387	665	555	511	4,679	910	18,636
Turkey.....	2,378	1,581	3,468	4,781	5,014	13,242	18,912	21,492
United Arab Republic.....	2,536	3,978	4,772	5,330	931	3,242	2,942	37,778
<b>Totals, Commonwealth and Preferential Countries.....</b>	<b>1,048</b>	<b>760</b>	<b>1,227</b>	<b>1,438</b>	<b>1,156</b>	<b>1,306</b>	<b>4,919</b>	<b>1,362</b>
<b>Totals, Other Countries...</b>	<b>30,662</b>	<b>27,468</b>	<b>32,218</b>	<b>40,551</b>	<b>28,665</b>	<b>51,897</b>	<b>60,402</b>	<b>122,433</b>
<b>Totals, Middle East....</b>	<b>31,710</b>	<b>28,229</b>	<b>33,446</b>	<b>41,989</b>	<b>29,821</b>	<b>53,203</b>	<b>65,321</b>	<b>123,795</b>
<b>Other Africa—</b>								
Gambia.....	212	71	162	163	171	165	148	156
Ghana.....	5,451	7,333	5,723	3,994	4,384	5,075	5,100	6,076
Kenya.....	1,003	911	4,605	1,653	2,114	1,884	2,375	1,455
Malawi.....	3	3	90	143	317	218	294	380
Mauritius and Dependencies.....	218	94	236	135	200	354	199	378
Nigeria.....	3,234	6,292	6,934	10,108	3,700	3,809	4,169	8,160
Northern Rhodesia.....	826	1,031	4	4	4	4	4	4
Nyasaland.....	99	156	5	5	5	5	5	5
Rhodesia.....	6	6	3,841	603	95	24	2	15
Sierra Leone.....	1,298	1,329	1,134	1,743	724	164	538	912
South Africa.....	60,299	69,166	76,226	74,393	77,690	68,341	78,501	104,005
Southern Rhodesia.....	3,637	3,150	7	7	7	7	7	7
Tanganyika.....	377	192	8	8	8	8	8	8
Tanzania.....	9	9	316	2,039	3,229	1,163	637	633
Uganda.....	148	259	1,167	521	364	1,299	839	1,121
Zambia.....	10	10	4,279	1,384	4,082	1,939	1,504	4,967
<b>Commonwealth Africa, <i>n.e.s.</i>.....</b>	<b>52</b>	<b>31</b>	<b>35</b>	<b>13</b>	<b>14</b>	<b>10</b>	<b>122</b>	<b>316</b>
Algeria.....	3,970	1,212	228	965	2,674	7,309	2,948	19,138
Angola.....	104	75	228	315	222	377	386	628
Cameroon.....	24	39	157	199	249	385	853	1,044
Congo (Kinshasa).....	921	1,127	872	956	586	1,637	1,394	2,262

<sup>1</sup> Included with British Middle East, *n.e.s.*    <sup>2</sup> See Southern Yemen and Trucial States.    <sup>3</sup> Formerly Nyasaland.    <sup>4</sup> See Zambia.    <sup>5</sup> See Malawi.    <sup>6</sup> Formerly Southern Rhodesia.    <sup>7</sup> See Rhodesia.    <sup>8</sup> See Tanzania.    <sup>9</sup> Formerly Tanganyika.    <sup>10</sup> Formerly Northern Rhodesia.

## 4.—Value of Domestic Exports, by Geographic Region and Country, 1963-70—continued

Region and Country	1963	1964	1965	1966	1967	1968	1969	1970
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Other Africa—concluded</b>								
Dahomey.....	1	1	1	1	120	107	826	74
French Africa, <i>n.e.s.</i> .....	92	214	226	461	291	548	2,216	939
Gabon.....	15	146	31	294	560	813	1,000	622
Guinea.....	2	4	81	728	42	284	242	78
Ivory Coast.....	18	66	49	88	246	657	651	994
Liberia.....	1,100	5,518	1,908	1,344	1,349	1,056	1,340	2,153
Malagasy.....	1	1	108	145	32	145	22	38
Mauritania.....	258	169	657	123	114	300	606	481
Morocco.....	963	667	391	297	3,725	4,627	1,463	5,423
Mozambique.....	2,646	1,806	3,282	1,280	1,871	2,931	3,006	2,300
Portuguese Africa, <i>n.e.s.</i> .....	283	164	367	171	109	178	269	315
Senegal.....	1	1	1	1	1,314	153	771	554
Spanish Africa.....	27	229	112	85	135	96	209	359
Togo.....	350	443	317	585	354	436	453	304
Tunisia.....	1,970	327	86	196	93	1,561	2,584	6,934
Totals, Commonwealth and Preferential Countries.....	76,853	90,012	104,748	96,894	97,084	84,446	94,428	128,576
Totals, Other Countries...	12,738	12,207	9,101	8,131	14,085	23,598	21,239	44,642
<b>Totals, Other Africa.....</b>	<b>89,591</b>	<b>102,219</b>	<b>113,849</b>	<b>105,024</b>	<b>111,169</b>	<b>108,044</b>	<b>115,666</b>	<b>173,218</b>
<b>Other Asia—</b>								
Ceylon.....	2,636	4,724	2,199	5,250	9,027	5,626	3,153	9,311
Hong Kong.....	17,490	22,278	16,734	15,385	17,349	16,587	17,678	20,753
India.....	53,900	64,042	58,453	107,662	140,592	111,255	95,552	129,842
Malaysia.....	6,999	8,370	9,253	15,376	13,445	10,726	15,524	14,003
Pakistan.....	19,152	20,031	21,643	25,671	33,181	29,689	22,142	55,799
Singapore.....	s	s	s	s	2,868	3,159	4,822	10,797
Afghanistan.....	18	23	23	18	799	465	91	263
Burma.....	703	736	671	1,195	262	740	1,469	2,099
Cambodia and Laos.....	17	9	128	98	63	76	204	653
People's Republic of China.....	104,738	136,263	105,131	184,879	91,306	163,243	122,891	141,995
Indonesia.....	1,449	703	1,636	347	2,771	2,408	2,948	16,489
Japan.....	296,010	330,234	316,187	393,892	572,156	606,787	624,733	810,142
Korea.....	3,815	1,096	823	4	2	4	4	2
Korea, North.....	b	b	b	12,802	—	—	253	—
Korea, South.....	b	b	b	2,849	7,671	13,203	15,331	18,806
Philippines.....	21,284	27,809	26,354	18,683	25,458	34,546	32,328	30,154
Portuguese Asia.....	38	41	48	60	48	52	28	22
Taiwan.....	3,759	6,178	6,577	8,410	12,267	16,893	12,157	18,315
Thailand.....	2,823	3,803	5,621	6,742	6,947	7,162	8,539	8,006
Viet-Nam.....	250	726	804	2,589	1,939	2,168	2,135	3,839
Totals, Commonwealth and Preferential Countries.....	100,176	119,445	108,282	169,344	216,461	177,043	158,872	240,506
Totals, Other Countries...	434,903	507,623	464,002	632,565	721,687	847,744	823,110	1,050,783
<b>Totals, Other Asia.....</b>	<b>535,079</b>	<b>627,068</b>	<b>572,284</b>	<b>801,909</b>	<b>938,148</b>	<b>1,024,786</b>	<b>981,981</b>	<b>1,291,288</b>
<b>Oceania—</b>								
Australia.....	100,773	145,812	140,372	117,359	156,249	185,717	163,258	197,749
Fiji.....	759	891	1,115	829	875	910	873	905
New Zealand.....	30,549	33,714	36,845	41,750	40,742	31,842	36,976	42,691
British Oceania, <i>n.e.s.</i> .....	249	386	317	304	205	235	72	174
French Oceania.....	299	436	508	614	1,149	1,693	715	790
United States Oceania.....	3,693	1,261	828	740	764	948	1,734	1,233
Totals, Commonwealth and Preferential Countries.....	132,330	180,804	178,650	160,241	198,071	218,704	201,180	241,521
Totals, Other Countries...	3,992	1,697	1,336	1,354	1,914	2,641	2,449	2,023
<b>Totals, Oceania.....</b>	<b>136,322</b>	<b>182,501</b>	<b>179,986</b>	<b>161,595</b>	<b>199,985</b>	<b>221,345</b>	<b>203,629</b>	<b>243,544</b>

<sup>1</sup> Included with French Africa, *n.e.s.* <sup>2</sup> Less than \$500. <sup>3</sup> Included with Malaysia. <sup>4</sup> Trade with Korea included in Korea, North and Korea, South. <sup>5</sup> Trade with Korea, North included with Korea <sup>6</sup> Trade with Korea, South included with Korea.



## 4.—Value of Domestic Exports, by Geographic Region and Country, 1963-70—concluded

Region and Country	1963	1964	1965	1966	1967	1968	1969	1970
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>South America—</b>								
Falkland Islands.....	6	1	4	9	133	1	13	3
Guyana.....	5,061	7,116	7,750	9,878	12,132	9,291	8,395	12,244
Argentina.....	36,992	26,889	32,720	39,529	33,380	48,017	62,315	59,129
Bolivia.....	628	985	1,687	2,126	2,233	3,478	2,086	2,205
Brazil.....	29,432	22,985	17,509	21,157	27,540	48,200	50,246	87,387
Chile.....	12,329	12,659	10,514	12,316	17,747	20,735	22,837	22,884
Colombia.....	23,348	21,252	17,362	25,397	18,199	18,376	18,778	24,625
Ecuador.....	3,913	5,719	4,672	3,028	3,093	3,481	2,596	3,516
French Guiana.....	2	4	54	18	38	15	12	18
Paraguay.....	211	485	177	129	114	717	348	186
Peru.....	11,641	10,749	21,864	36,355	32,344	22,231	26,234	35,891
Surinam.....	1,031	1,610	1,283	1,834	1,238	2,037	1,383	1,641
Uruguay.....	2,994	5,679	3,283	4,779	2,952	2,377	3,351	4,376
Venezuela.....	46,328	64,075	73,045	75,958	82,049	102,671	92,902	111,391
Totals, Commonwealth and Preferential Countries.....	5,067	7,117	7,754	9,887	12,265	9,292	8,408	12,247
Totals, Other Countries...	168,848	173,090	184,168	222,626	220,927	272,336	283,087	353,249
<b>Totals, South America</b>	<b>173,915</b>	<b>180,207</b>	<b>191,922</b>	<b>232,512</b>	<b>233,192</b>	<b>281,628</b>	<b>291,495</b>	<b>365,496</b>
<b>Central America and Antilles—</b>								
Bahamas.....	6,133	8,876	9,257	10,847	10,245	12,772	15,213	16,495
Barbados.....	5,469	6,922	6,826	8,112	8,417	10,056	8,762	10,972
Bermuda.....	5,713	6,339	5,984	7,442	7,372	7,134	9,060	11,139
British Honduras.....	698	973	1,065	921	1,179	1,343	1,720	1,700
Jamaica.....	22,271	28,942	30,280	33,500	39,080	34,378	40,481	46,545
Leeward and Windward Islands.....	6,596	7,986	8,037	8,753	9,719	8,414	10,396	14,024
Trinidad and Tobago.....	16,213	17,791	21,532	23,337	20,115	16,228	19,492	21,241
Costa Rica.....	3,651	3,841	5,397	5,130	4,173	2,814	3,190	6,024
Cuba.....	16,433	60,930	52,594	61,436	42,390	44,988	40,739	58,900
Dominican Republic.....	9,085	9,070	6,152	6,824	4,710	5,637	6,163	20,470
El Salvador.....	3,134	4,416	4,051	3,294	4,470	3,171	4,907	3,409
French West Indies.....	66	135	144	157	225	460	641	414
Guatemala.....	3,107	3,433	4,001	3,254	2,921	2,487	3,845	3,567
Haiti.....	1,525	1,485	1,302	1,228	1,124	2,063	3,694	4,851
Honduras.....	1,100	1,260	1,005	1,445	1,086	1,359	1,098	2,836
Mexico.....	55,572	65,151	51,006	52,145	49,202	54,589	72,873	91,698
Netherlands Antilles.....	2,406	2,355	3,004	3,008	3,683	3,079	3,149	4,692
Nicaragua.....	2,693	2,209	2,805	3,070	2,820	2,179	2,430	2,163
Panama.....	4,417	4,602	4,622	5,444	4,659	5,521	6,499	7,731
Puerto Rico.....	14,619	15,408	17,693	19,560	26,772	37,811	36,976	48,515
United States Virgin Islands	284	1,317	1,571	950	836	1,343	1,046	1,355
Totals, Commonwealth and Preferential Countries.....	63,093	77,829	82,981	92,913	96,127	90,325	105,126	122,118
Totals, Other Countries...	118,092	175,612	155,348	166,944	149,071	167,501	187,250	256,624
<b>Totals, Central America and Antilles</b>	<b>181,185</b>	<b>253,441</b>	<b>238,329</b>	<b>259,856</b>	<b>245,198</b>	<b>257,826</b>	<b>292,375</b>	<b>378,742</b>
<b>North America—</b>								
Greenland.....	287	272	137	156	480	363	80	142
St. Pierre and Miquelon.....	1,913	2,431	2,713	3,079	3,461	4,590	4,997	5,793
United States.....	3,766,380	4,271,059	4,840,456	6,027,722	7,088,490	8,941,501	10,273,542	10,652,713
<b>Totals, North America</b>	<b>3,768,580</b>	<b>4,273,762</b>	<b>4,843,307</b>	<b>6,030,957</b>	<b>7,092,431</b>	<b>8,946,454</b>	<b>10,278,619</b>	<b>10,658,649</b>
<b>Grand Totals, Commonwealth and Preferential Countries.....</b>	<b>1,398,364</b>	<b>1,693,656</b>	<b>1,676,638</b>	<b>1,669,994</b>	<b>1,807,254</b>	<b>1,802,660</b>	<b>1,680,093</b>	<b>2,227,371</b>
<b>Grand Totals, Other Countries and EEC.....</b>	<b>5,400,165</b>	<b>6,400,569</b>	<b>6,848,440</b>	<b>8,400,633</b>	<b>9,313,420</b>	<b>11,467,275</b>	<b>12,818,130</b>	<b>14,246,494</b>
<b>Grand Totals, All Countries.....</b>	<b>6,798,529</b>	<b>8,094,225</b>	<b>8,525,078</b>	<b>10,070,627</b>	<b>11,120,674</b>	<b>13,269,935</b>	<b>14,498,224</b>	<b>16,473,865</b>



## 5.—Value of Imports, by Geographic Region and Country, 1963-70

Region and Country	1963	1964	1965	1966	1967	1968	1969	1970
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Western Europe—</b>								
United Kingdom.....	526,800	573,995	619,058	644,741	673,050	696,085	790,973	738,262
Gibraltar.....	—	13	2	1	1	1	1	2
Ireland.....	5,320	5,624	6,861	6,512	8,986	9,675	11,102	13,159
Malta and Gozo.....	232	113	387	394	617	594	1,458	808
Austria.....	9,026	9,595	12,281	15,192	19,715	28,563	38,878	45,614
Belgium and Luxembourg...	47,342	59,198	72,027	61,555	64,620	57,520	60,936	51,695
Denmark.....	13,209	15,749	20,071	24,181	27,055	26,393	32,392	30,495
Finland.....	2,520	3,177	2,762	3,533	3,296	4,234	12,610	25,784
France.....	58,170	68,687	96,103	106,651	130,080	121,647	151,841	158,486
Germany, Federal Republic of.....	144,023	170,392	209,517	235,207	256,879	298,869	354,715	370,931
Greece.....	1,631	1,550	1,838	1,831	3,521	3,259	4,335	4,996
Iceland.....	696	2	659	509	452	13	34	65
Italy.....	55,303	67,462	80,279	86,718	110,269	114,492	141,193	144,973
Netherlands.....	36,736	39,933	56,274	60,489	64,783	69,052	78,678	78,923
Norway.....	23,492	27,335	33,641	33,774	33,761	39,204	44,895	49,132
Portugal.....	7,713	9,414	11,053	13,288	14,437	12,321	13,648	13,966
Spain.....	8,496	11,704	13,280	12,505	17,093	25,626	28,714	34,460
Sweden.....	33,410	38,794	55,568	72,541	76,242	78,091	84,506	105,888
Switzerland.....	32,469	36,932	43,986	50,279	66,022	64,326	83,930	80,831
<b>Totals, Commonwealth and Preferential Countries.....</b>	<b>532,352</b>	<b>579,746</b>	<b>626,307</b>	<b>651,648</b>	<b>682,653</b>	<b>706,354</b>	<b>803,533</b>	<b>752,230</b>
<b>European Economic Community.....</b>	<b>341,574</b>	<b>405,672</b>	<b>514,199</b>	<b>550,619</b>	<b>626,630</b>	<b>661,581</b>	<b>787,363</b>	<b>805,008</b>
<b>Other countries.....</b>	<b>132,661</b>	<b>154,252</b>	<b>195,139</b>	<b>227,633</b>	<b>261,593</b>	<b>282,031</b>	<b>343,941</b>	<b>391,229</b>
<b>Totals, Western Europe.....</b>	<b>1,006,588</b>	<b>1,139,670</b>	<b>1,335,646</b>	<b>1,429,900</b>	<b>1,570,877</b>	<b>1,649,966</b>	<b>1,934,836</b>	<b>1,948,468</b>
<b>Eastern Europe—</b>								
Albania.....	—	—	1	—	4	—	1	4
Bulgaria.....	74	114	526	768	1,308	1,602	1,316	1,101
Czechoslovakia.....	9,204	12,847	15,965	21,709	28,529	27,367	30,046	27,491
German Democratic Republic.....	1,207	1,473	1,584	2,163	3,291	2,927	3,481	3,605
Hungary.....	557	761	1,608	3,309	6,542	7,942	9,184	9,192
Poland.....	6,788	9,280	11,815	13,757	14,982	13,351	12,408	12,029
Romania.....	124	82	238	569	1,003	1,884	7,142	5,086
Union of Soviet Socialist Republics.....	2,313	2,808	9,885	11,654	23,015	21,659	12,302	9,074
Yugoslavia.....	1,843	2,601	2,967	2,638	3,754	4,725	5,632	7,248
<b>Totals, Eastern Europe.....</b>	<b>22,109</b>	<b>29,966</b>	<b>44,588</b>	<b>56,566</b>	<b>82,426</b>	<b>81,457</b>	<b>81,510</b>	<b>74,830</b>
<b>Middle East—</b>								
Bahrain.....	1	—	—	—	—	5	—	—
Cyprus.....	88	48	291	108	306	345	298	251
Qatar.....	8,678	2,285	2,732	—	27	—	—	—
Southern Yemen.....	2	—	353	80	15	18	404	28
Trucial States.....	2	2	1,741	2,984	1	4,626	14,922	7,162
British Middle East, <i>n.e.s.</i> ...	56	3,183	3	3	3	3	3	3
Ethiopia.....	21	141	66	63	90	85	43	44
Iran.....	42,799	31,085	31,765	35,469	33,229	33,569	30,176	33,880
Iraq.....	1,269	2,379	5,284	12,529	9,413	554	8,838	14,409
Israel.....	6,043	6,270	6,656	6,758	9,210	12,889	15,067	14,469
Jordan.....	3	10	9	7	20	4	1	1
Kuwait.....	5,169	11,219	11,505	6,157	2,287	3,864	6,072	7,040
Lebanon.....	1	81	50	104	1	409	854	910
Libya.....	1	—	1	10,963	11,263	1	8,873	10
Saudi Arabia.....	50,290	18,553	42,114	32,552	30,967	36,187	26,751	24,075
Somalia.....	1	1	—	24	—	—	—	—
Sudan.....	148	113	138	93	123	192	304	156
Syria.....	362	492	515	380	61	42	5	9
Turkey.....	1,294	1,207	1,055	979	1,480	1,697	3,646	1,469

<sup>1</sup> Less than \$500.  
States.<sup>2</sup> Included with British Middle East, *n.e.s.*<sup>3</sup> See Southern Yemen and Trucial

## 5.—Value of Imports, by Geographic Region and Country, 1963-70—continued

Region and Country	1963	1964	1965	1966	1967	1968	1969	1970
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Middle East—concluded</b>								
United Arab Republic.....	224	125	221	661	258	380	1,144	422
Totals, Commonwealth and Preferential Countries.....	8,823	5,516	5,118	3,171	348	4,995	15,624	7,441
Totals, Other Countries...	107,688	71,675	99,379	107,676	98,506	89,872	101,774	96,894
<b>Totals, Middle East...</b>	<b>116,511</b>	<b>77,191</b>	<b>104,496</b>	<b>110,848</b>	<b>98,854</b>	<b>94,868</b>	<b>117,398</b>	<b>104,335</b>
<b>Other Africa—</b>								
Gambia.....	—	—	—	—	—	—	—	453
Ghana.....	6,533	7,961	10,158	10,824	7,950	11,073	7,549	6,996
Kenya.....	5,323	7,397	6,862	7,208	7,409	4,352	5,624	5,672
Malawi.....	1	1	391	583	647	1,033	538	433
Mauritius and Dependencies.....	8,606	13,394	6,456	5,131	2,919	7,972	14,129	14,831
Nigeria.....	7,924	11,264	11,252	39,490	36,560	16,966	22,203	44,558
Northern Rhodesia.....	1,306	37	2	2	2	2	2	2
Nyasaland.....	408	297	3	3	3	3	3	3
Rhodesia.....	4	4	3,408	1,175	4	2	1	1
Sierra Leone.....	5	3	311	66	3	—	144	1
South Africa.....	31,548	28,777	27,113	27,641	37,060	39,315	45,944	45,702
Southern Rhodesia.....	6,320	4,279	5	5	5	5	5	5
Tanganyika.....	7,315	9,061	6	6	6	6	6	6
Tanzania.....	7	7	6,907	7,065	6,469	4,535	3,829	4,034
Uganda.....	3,144	4,582	6,800	5,862	9,719	9,930	6,657	7,832
Zambia.....	8	8	2	8	21	3	91	14
Commonwealth Africa, <i>n.e.s.</i> .....	4	3	4	8	3	11	2,871	3,623
Algeria.....	458	61	98	47	245	139	43	195
Angola.....	728	1,297	1,415	3,095	5,924	7,743	6,175	9,634
Cameroon.....	147	43	121	57	106	107	9	740
Congo (Kinshasa).....	1,921	1,911	1,661	1,081	1,374	946	1,341	1,626
Dahomey.....	10	10	10	10	5	28	9	—
French Africa, <i>n.e.s.</i> .....	310	1,263	68	542	31	659	76	98
Gabon.....	859	687	274	1,064	317	56	58	1,340
Guinea.....	2,501	1,707	1,066	2,088	2,265	1,076	101	199
Ivory Coast.....	227	623	247	814	700	481	4,710	1,289
Liberia.....	106	327	208	63	365	627	928	659
Malagasy.....	10	10	668	538	250	51	122	401
Mauritania.....	10	—	—	—	12	—	291	—
Morocco.....	540	1,162	278	1,406	2,465	969	447	343
Mozambique.....	395	431	633	515	735	681	905	1,254
Portuguese Africa, <i>n.e.s.</i> .....	—	—	—	—	9	1	9	9
Senegal.....	10	10	10	10	13	14	12	1
Spanish Africa.....	39	22	6	2	4	1	51	566
Togo.....	—	—	6	—	1	—	3	—
Tunisia.....	2	19	19	12	512	185	20	6
Totals, Commonwealth and Preferential Countries.....	78,433	87,055	79,664	105,060	108,764	95,189	109,580	134,149
Totals, Other Countries...	8,234	9,553	6,767	11,323	15,325	13,765	15,284	18,352
<b>Totals, Other Africa...</b>	<b>86,667</b>	<b>96,608</b>	<b>86,431</b>	<b>116,383</b>	<b>124,089</b>	<b>108,955</b>	<b>124,864</b>	<b>152,501</b>
<b>Other Asia—</b>								
Ceylon.....	14,642	13,413	14,049	10,045	12,155	9,600	9,279	8,790
Hong Kong.....	21,197	26,321	31,043	38,911	51,040	58,354	72,942	78,486
India.....	52,664	36,121	43,424	40,093	42,774	38,304	40,905	40,096
Malaysia.....	31,634	34,566	40,272	41,453	22,298	25,986	32,824	34,180
Pakistan.....	2,270	4,211	3,654	4,287	4,441	4,767	7,064	9,964
Singapore.....	11	11	11	11	11,173	15,117	21,967	20,211
Afghanistan.....	—	—	—	15	9	4	49	111
Burma.....	102	276	39	106	105	76	55	2
Cambodia and Laos.....	—	—	—	—	3	4	1	—
People's Republic of China...	5,147	9,420	14,445	20,594	25,074	23,439	27,421	19,028

<sup>1</sup> Formerly Nyasaland. <sup>2</sup> See Zambia. <sup>3</sup> See Malawi. <sup>4</sup> Formerly Southern Rhodesia.  
<sup>5</sup> See Rhodesia. <sup>6</sup> See Tanzania. <sup>7</sup> Formerly Tanganyika. <sup>8</sup> Formerly Northern Rhodesia.  
<sup>9</sup> Less than \$500. <sup>10</sup> Included with French Africa, *n.e.s.* <sup>11</sup> Included with Malaysia.

## 5.—Value of Imports, by Geographic Region and Country, 1963-70—continued

Region and Country	1963	1964	1965	1966	1967	1968	1969	1970
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Other Asia—concluded</b>								
Indonesia.....	152	1,393	2,365	1,158	1,066	445	284	589
Japan.....	130,471	174,388	230,144	253,051	304,768	360,180	495,704	581,715
Korea.....	380	473	1,468	<sup>1</sup>	<sup>1</sup>	<sup>1</sup>	<sup>1</sup>	<sup>1</sup>
Korea, North.....	<sup>2</sup>	<sup>2</sup>	<sup>2</sup>	—	2	1	<sup>3</sup>	<sup>3</sup>
Korea, South.....	<sup>4</sup>	<sup>4</sup>	<sup>4</sup>	1,764	4,568	11,241	12,192	14,569
Philippines.....	2,007	2,970	3,583	3,344	3,066	2,802	4,486	4,329
Portuguese Asia.....	428	1,204	2,069	33	27	24	45	43
Taiwan.....	5,875	9,063	9,333	13,089	23,569	34,379	42,456	51,936
Thailand.....	582	582	899	2,431	4,868	2,023	995	1,061
Viet-Nam.....	1	4	2	1	6	1	5	13
Totals, Commonwealth and Preferential Countries.....	122,407	114,633	132,443	134,788	143,880	152,127	184,982	191,727
Totals, Other Countries...	145,145	199,772	264,347	295,586	367,122	434,618	583,694	673,396
<b>Totals, Other Asia.....</b>	<b>267,552</b>	<b>314,405</b>	<b>396,790</b>	<b>430,375</b>	<b>511,002</b>	<b>586,745</b>	<b>788,676</b>	<b>865,123</b>
<b>Oceania—</b>								
Australia.....	55,650	59,827	47,372	59,573	64,471	75,990	96,285	146,148
Fiji.....	8,588	7,401	4,801	2,724	3,754	3,626	5,681	6,899
New Zealand.....	14,067	14,076	14,870	14,972	15,270	18,645	41,182	43,064
British Oceania, <i>n.e.s.</i> .....	5	6	—	1	3	2	1	—
French Oceania.....	<sup>3</sup>	3,559	5,092	6,612	6,116	7,534	2,842	2,545
United States Oceania.....	27	28	138	86	128	116	43	82
Totals, Commonwealth and Preferential Countries.....	78,310	81,310	67,044	77,270	83,498	98,262	143,149	196,111
Totals, Other Countries...	27	3,586	5,229	6,698	6,244	7,650	2,885	2,627
<b>Totals, Oceania.....</b>	<b>78,338</b>	<b>84,896</b>	<b>72,273</b>	<b>83,968</b>	<b>89,742</b>	<b>105,912</b>	<b>146,034</b>	<b>198,738</b>
<b>South America—</b>								
Falkland Islands.....	—	—	—	—	2	5	<sup>3</sup>	—
Guyana.....	31,334	35,653	22,549	20,126	29,581	29,408	31,050	28,770
Argentina.....	5,352	5,938	5,400	4,882	5,188	5,358	8,644	8,985
Bolivia.....	70	289	384	175	56	68	139	136
Brazil.....	36,361	39,533	35,573	35,777	31,436	38,725	42,128	49,311
Chile.....	1,271	1,755	1,713	1,891	1,746	2,138	3,273	2,757
Colombia.....	13,576	14,889	16,812	11,619	13,384	12,191	14,565	26,589
Ecuador.....	7,625	9,353	8,546	7,873	8,129	8,549	8,542	10,503
French Guiana.....	1	—	—	18	138	19	—	—
Paraguay.....	831	547	455	477	668	355	1,100	656
Peru.....	3,770	7,792	9,053	3,517	2,276	3,156	2,835	4,304
Surinam.....	6,158	6,978	8,702	8,150	8,166	7,190	8,135	5,423
Uruguay.....	868	968	975	477	401	532	313	245
Venezuela.....	243,495	270,621	254,670	215,059	276,327	357,862	345,596	339,212
Totals, Commonwealth and Preferential Countries.....	31,334	35,653	22,549	20,126	29,583	29,413	31,051	28,770
Totals, Other Countries...	319,379	358,664	342,283	289,916	347,904	436,145	435,271	448,122
<b>Totals, South America.....</b>	<b>350,714</b>	<b>394,317</b>	<b>364,832</b>	<b>319,041</b>	<b>377,487</b>	<b>465,559</b>	<b>466,322</b>	<b>476,892</b>
<b>Central America and Antilles—</b>								
Bahamas.....	426	412	533	1,214	2,221	3,107	4,495	6,457
Barbados.....	3,954	3,851	3,041	2,277	3,119	1,531	1,497	1,553
Bermuda.....	262	190	403	727	326	473	180	187
British Honduras.....	1,720	1,858	1,235	1,479	1,920	2,445	2,526	3,031
Jamaica.....	51,524	47,858	36,000	37,281	31,860	33,935	45,978	27,067

<sup>1</sup> Trade with Korea included in Korea, North and Korea, South.<sup>2</sup> Trade with Korea, North included<sup>3</sup> Less than \$500.<sup>4</sup> Trade with Korea, South included with Korea.

## 5.—Value of Imports, by Geographic Region and Country, 1963-70—concluded

Region and Country	1963	1964	1965	1966	1967	1968	1969	1970
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Central America and Antilles—concluded</b>								
Leeward and Windward Islands.....	2,202	1,026	832	943	1,420	1,323	2,464	3,259
Trinidad and Tobago.....	15,871	20,738	16,670	16,050	18,750	19,927	17,742	7,517
Costa Rica.....	7,308	8,363	6,715	6,458	7,276	9,664	8,706	12,105
Cuba.....	13,041	3,464	5,304	5,629	6,335	5,114	7,759	9,511
Dominican Republic.....	2,281	5,093	2,050	1,311	957	1,131	603	1,912
El Salvador.....	1,960	3,356	2,696	2,110	2,022	3,307	2,093	4,044
French West Indies.....	278	263	552	48	30	4	23	6
Guatemala.....	2,557	2,422	2,879	2,686	2,484	3,078	4,949	5,964
Haiti.....	1,159	2,056	1,076	944	930	1,229	692	758
Honduras.....	6,868	7,670	10,193	11,440	11,668	10,474	12,645	13,127
Mexico.....	23,734	23,186	27,247	33,539	29,535	52,167	64,085	47,344
Netherlands Antilles.....	35,999	34,885	43,841	38,511	60,293	49,658	50,395	54,178
Nicaragua.....	383	727	247	437	1,878	2,245	1,953	1,139
Panama.....	11,057	15,095	19,414	16,066	14,798	12,524	13,513	7,658
Puerto Rico.....	2,399	3,554	2,759	4,404	6,210	2,542	5,098	6,954
United States Virgin Islands	1	3	—	4	4	—	2	16
Totals, Commonwealth and Preferential Countries.....	75,960	75,933	58,714	59,971	59,616	62,741	74,883	49,071
Totals, Other Countries..	109,025	110,137	124,471	123,586	144,419	153,135	172,515	164,715
<b>Totals, Central America and Antilles</b>	<b>184,985</b>	<b>186,070</b>	<b>183,185</b>	<b>183,557</b>	<b>204,034</b>	<b>215,876</b>	<b>247,398</b>	<b>213,787</b>
<b>North America—</b>								
Greenland.....	106	110	—	16	256	114	12	135
St. Pierre and Miquelon....	84	189	76	174	91	159	84	48
United States.....	4,444,556	5,164,285	6,044,831	7,135,611	8,016,341	9,048,372	10,243,238	9,904,919
<b>Totals, North America..</b>	<b>4,444,746</b>	<b>5,164,585</b>	<b>6,044,907</b>	<b>7,135,801</b>	<b>8,016,688</b>	<b>9,048,645</b>	<b>10,243,334</b>	<b>9,905,102</b>
<b>Grand Totals, Commonwealth and Preferential Countries.....</b>	<b>927,620</b>	<b>979,845</b>	<b>991,838</b>	<b>1,061,035</b>	<b>1,108,342</b>	<b>1,149,082</b>	<b>1,362,801</b>	<b>1,359,500</b>
<b>Grand Totals, Other Countries and EEC.....</b>	<b>5,630,589</b>	<b>6,507,862</b>	<b>7,641,310</b>	<b>8,805,405</b>	<b>9,966,857</b>	<b>11,208,899</b>	<b>12,767,571</b>	<b>12,580,275</b>
<b>Grand Totals, All Countries.....</b>	<b>6,558,209</b>	<b>7,487,707</b>	<b>8,633,148</b>	<b>9,866,439</b>	<b>11,075,199</b>	<b>12,357,982</b>	<b>14,130,372</b>	<b>13,939,775</b>

<sup>1</sup> Less than \$500.

## 6.—Values of Dutiable and Free Imports, by Geographic Region and Leading Countries, 1968-70

Region and Country	1968			1969			1970		
	Dutiable	Free	Total	Dutiable	Free	Total	Dutiable	Free	Total
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Western Europe.....</b>	<b>910,771</b>	<b>739,195</b>	<b>1,649,966</b>	<b>1,123,888</b>	<b>810,949</b>	<b>1,934,836</b>	<b>1,146,956</b>	<b>801,512</b>	<b>1,948,468</b>
United Kingdom.....	281,326	414,759	696,085	351,614	439,360	790,973	366,932	371,330	738,262
Austria.....	13,952	14,612	28,563	17,015	21,863	38,878	19,069	26,545	45,614
Belgium and Luxembourg.....	40,984	16,536	57,520	44,826	16,110	60,936	36,237	15,458	51,695
Denmark.....	17,907	8,486	26,393	23,452	8,940	32,392	21,905	8,590	30,495
France.....	74,848	46,800	121,647	97,231	54,610	151,841	104,388	54,098	158,486
Germany, Federal Republic of.....	209,409	89,460	298,869	251,313	103,402	354,715	247,059	123,872	370,931
Italy.....	97,870	16,622	114,492	122,917	18,276	141,193	120,274	24,698	144,973
Netherlands.....	44,686	24,366	69,052	50,503	28,175	78,678	47,335	31,589	78,923
Norway.....	9,498	29,705	39,204	9,852	35,043	44,895	7,021	42,110	49,132



**6.—Values of Dutiable and Free Imports, by Geographic Region and Leading Countries, 1968-70—continued**

Region and Country	1968			1969			1970		
	Dutiable	Free	Total	Dutiable	Free	Total	Dutiable	Free	Total
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Western Europe—</b>									
concluded									
Spain.....	15,237	10,390	25,626	21,644	7,070	28,714	27,974	6,486	34,460
Sweden.....	41,200	36,890	78,091	50,538	33,968	84,506	53,260	52,627	105,888
Switzerland.....	42,904	21,422	64,326	51,025	32,905	83,930	53,270	27,560	80,831
<b>Eastern Europe.....</b>	<b>62,338</b>	<b>19,118</b>	<b>81,457</b>	<b>70,016</b>	<b>11,494</b>	<b>81,510</b>	<b>67,317</b>	<b>7,513</b>	<b>74,830</b>
Czechoslovakia.....	25,062	2,305	27,367	28,451	1,594	30,046	26,496	996	27,491
Poland.....	12,757	594	13,351	11,446	962	12,408	11,398	631	12,029
Union of Soviet Socialist Republics.....	7,229	14,431	21,659	5,681	6,620	12,302	5,958	3,116	9,074
<b>Middle East.....</b>	<b>8,262</b>	<b>86,605</b>	<b>94,868</b>	<b>12,640</b>	<b>104,758</b>	<b>117,398</b>	<b>9,728</b>	<b>94,608</b>	<b>104,335</b>
Cyprus.....	68	277	345	68	231	298	78	173	251
Southern Yemen.....	—	18	18	370	34	404	—	28	28
Trucial States.....	—	4,626	4,626	—	14,922	14,922	—	7,162	7,162
Iran.....	432	33,138	33,569	860	29,316	30,176	270	33,610	33,880
Israel.....	59	495	554	44	8,794	8,838	1	14,408	14,409
Libya.....	6,802	6,087	12,889	9,482	5,585	15,067	7,995	6,474	14,469
Libya.....	—	1	1	1	8,873	8,873	858	52	910
<b>Other Africa.....</b>	<b>28,492</b>	<b>80,463</b>	<b>108,955</b>	<b>42,952</b>	<b>81,913</b>	<b>124,864</b>	<b>45,466</b>	<b>107,034</b>	<b>152,501</b>
Ghana.....	128	10,945	11,073	162	7,387	7,549	6	6,990	6,996
Kenya.....	66	4,286	4,352	71	5,553	5,624	105	5,568	5,672
Mauritius and Dependencies.....	7,135	836	7,972	14,128	1	14,129	14,831	—	14,831
Nigeria.....	58	16,907	16,966	147	22,056	22,203	146	44,411	44,558
South Africa.....	20,335	18,979	39,315	22,998	22,947	45,944	24,434	21,268	45,702
Uganda.....	2	9,928	9,930	882	5,776	6,657	1,015	6,817	7,832
Angola.....	—	7,743	7,743	—	6,175	6,175	—	9,634	9,634
Ivory Coast.....	251	230	481	832	3,878	4,710	216	1,072	1,289
<b>Other Asia.....</b>	<b>461,946</b>	<b>124,800</b>	<b>586,745</b>	<b>611,194</b>	<b>157,482</b>	<b>768,676</b>	<b>705,035</b>	<b>160,088</b>	<b>865,123</b>
Hong Kong.....	56,765	1,589	58,354	70,408	2,534	72,942	75,331	3,155	78,486
India.....	8,126	30,178	38,304	8,743	32,162	40,905	13,298	26,799	40,096
Malaysia.....	2,452	23,534	25,986	2,768	30,056	32,824	1,031	33,148	34,180
Singapore.....	3,173	11,943	15,117	4,163	17,805	21,967	3,476	16,735	20,211
People's Republic of China.....	16,072	7,367	23,439	18,893	8,529	27,421	14,837	4,191	19,028
Japan.....	326,429	33,750	360,180	447,815	47,889	495,704	526,412	55,303	581,715
Korea, South.....	10,853	388	11,241	11,792	401	12,192	14,456	113	14,569
Taiwan.....	33,257	1,122	34,379	41,261	1,195	42,456	50,679	1,257	51,936
<b>Oceania.....</b>	<b>50,634</b>	<b>55,278</b>	<b>105,912</b>	<b>98,242</b>	<b>47,792</b>	<b>146,034</b>	<b>120,773</b>	<b>77,965</b>	<b>198,738</b>
Australia.....	36,988	39,002	75,990	58,994	37,291	96,285	79,715	66,432	146,148
Fiji.....	3,014	612	3,626	5,600	81	5,681	5,936	963	6,899
New Zealand.....	10,516	8,129	18,645	33,604	7,578	41,182	35,040	8,025	43,064
French Oceania.....	—	7,534	7,534	—	2,842	2,842	—	2,545	2,545
<b>South America.....</b>	<b>104,292</b>	<b>361,267</b>	<b>465,559</b>	<b>96,636</b>	<b>369,685</b>	<b>466,322</b>	<b>90,422</b>	<b>386,470</b>	<b>476,892</b>
Guyana.....	3,706	25,702	29,408	3,890	27,161	31,050	2,931	25,839	28,770
Argentina.....	3,652	1,706	5,358	6,190	2,454	8,644	5,623	3,363	8,985
Brazil.....	5,950	32,775	38,725	7,236	34,893	42,129	13,854	35,458	49,311
Colombia.....	2,621	9,570	12,191	3,010	11,555	14,565	1,745	24,484	26,589
Ecuador.....	8,059	491	8,549	7,089	1,453	8,542	7,798	2,705	10,503
Surinam.....	34	7,156	7,190	8	8,127	8,135	4	5,418	5,423
Venezuela.....	78,572	279,290	357,862	67,521	278,075	345,596	57,350	281,862	339,212

<sup>1</sup> Less than \$500.

**6.—Value of Dutiable and Free Imports, by Geographic Region and Leading Countries, 1968-70—concluded**

Region and Country	1968			1969			1970		
	Dutiable	Free	Total	Dutiable	Free	Total	Dutiable	Free	Total
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Central America and Antilles</b> .....	<b>116,262</b>	<b>99,614</b>	<b>215,876</b>	<b>135,244</b>	<b>112,154</b>	<b>247,398</b>	<b>131,981</b>	<b>81,806</b>	<b>213,787</b>
Jamaica.....	5,019	28,916	33,935	3,645	42,333	45,978	1,642	25,425	27,067
Trinidad and Tobago.....	8,138	11,789	19,927	11,042	6,701	17,742	5,868	1,649	7,517
Costa Rica.....	7,598	2,066	9,664	7,103	1,603	8,706	10,294	1,811	12,105
Cuba.....	3,944	1,170	5,114	6,977	782	7,759	8,255	1,255	9,510
Honduras.....	10,368	106	10,474	12,307	338	12,645	12,704	422	13,127
Mexico.....	11,505	40,662	52,167	20,112	43,974	64,085	17,182	30,161	47,344
Netherlands Antilles	49,461	196	49,658	50,125	270	50,395	53,796	382	54,178
Panama.....	12,319	205	12,524	13,103	409	13,513	7,546	111	7,658
<b>North America</b> .....	<b>3,286,262</b>	<b>5,762,382</b>	<b>9,048,645</b>	<b>3,716,391</b>	<b>6,526,943</b>	<b>10,243,334</b>	<b>3,591,957</b>	<b>6,313,146</b>	<b>9,905,102</b>
United States.....	3,286,197	5,762,175	9,048,372	3,716,377	6,526,860	10,243,238	3,591,934	6,312,985	9,904,919
<b>Totals, Commonwealth and Pref- erential Coun- tries</b> .....	<b>460,068</b>	<b>689,015</b>	<b>1,149,082</b>	<b>612,743</b>	<b>750,058</b>	<b>1,362,801</b>	<b>656,262</b>	<b>703,238</b>	<b>1,359,500</b>
<b>Totals, Other Countries</b> .....	<b>4,569,192</b>	<b>6,639,707</b>	<b>11,208,899</b>	<b>5,294,459</b>	<b>7,473,111</b>	<b>12,767,571</b>	<b>5,253,373</b>	<b>7,326,902</b>	<b>12,580,275</b>
<b>Grand Totals, Imports</b> .....	<b>5,029,260</b>	<b>7,328,722</b>	<b>12,357,982</b>	<b>5,907,202</b>	<b>8,223,170</b>	<b>14,130,372</b>	<b>5,909,635</b>	<b>8,030,140</b>	<b>13,939,775</b>

**Section 4.—Trade by Commodity**

This Section provides detailed information on the composition of Canada's exports and imports for 1969 and 1970. Table 7 shows exports and re-exports to and imports from all countries; the United Kingdom, the United States, Japan, the European Economic Community and other countries, classified by commodity section; Table 8 gives detailed statistics of all commodities of any importance exported from Canada to all countries, to the United Kingdom and to the United States; and detailed statistics for imports into Canada by section and commodity appear in Table 9.

**7.—Exports to and Imports from Principal Countries and Areas, by Section, 1969 and 1970**

Section	Domestic Exports		Re-exports		Imports	
	1969	1970	1969	1970	1969	1970
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>All Countries</b> .....	<b>14,498,224</b>	<b>16,473,865</b>	<b>427,647</b>	<b>419,007</b>	<b>14,130,372</b>	<b>13,939,775</b>
Live animals.....	54,404	68,168	235	435	18,711	30,453
Food, feed, beverages and tobacco	1,409,807	1,800,286	21,430	32,072	1,043,951	1,085,099
Crude materials, inedible.....	2,457,909	3,068,220	10,403	9,294	1,085,460	1,171,848
Fabricated materials, inedible.....	5,162,695	5,866,452	77,793	79,435	2,905,331	2,885,422
End products, inedible.....	5,378,202	5,639,558	314,252	294,323	8,884,929	8,605,604
Special transactions—trade.....	35,205	31,180	3,534	3,449	191,991	161,349
<b>United Kingdom</b> .....	<b>1,091,236</b>	<b>1,465,155</b>	<b>16,865</b>	<b>19,574</b>	<b>790,973</b>	<b>738,262</b>
Live animals.....	59	41	—	—	245	510
Food, feed, beverages and tobacco	258,614	257,739	1,671	850	49,313	48,967
Crude materials, inedible.....	231,487	300,308	1,044	531	27,755	24,093
Fabricated materials, inedible.....	531,073	799,713	2,607	1,983	198,826	193,216
End products, inedible.....	69,512	106,899	11,543	16,211	501,608	460,343
Special transactions—trade.....	491	456	—	—	13,226	11,133

**7.—Exports to and Imports from Principal Countries and Areas, by Section,  
1969 and 1970—concluded**

Section	Domestic Exports		Re-exports		Imports	
	1969	1970	1969	1970	1969	1970
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>United States</b> .....	<b>10,273,542</b>	<b>10,652,713</b>	<b>340,477</b>	<b>336,838</b>	<b>10,243,238</b>	<b>9,904,919</b>
Live animals.....	45,825	55,198	164	403	17,270	27,807
Food, feed, beverages and tobacco	556,090	604,790	18,036	28,890	508,296	487,875
Crude materials, inedible.....	1,370,673	1,625,552	8,501	7,229	451,667	535,488
Fabricated materials, inedible.....	3,573,320	3,603,442	68,355	68,405	1,911,505	1,914,943
End products, inedible.....	4,700,222	4,740,373	242,316	228,630	7,206,826	6,819,620
Special transactions—trade.....	27,413	23,357	3,105	3,281	147,674	119,186
<b>Japan</b> .....	<b>624,733</b>	<b>810,142</b>	<b>1,373</b>	<b>2,480</b>	<b>495,704</b>	<b>581,715</b>
Live animals.....	1,006	1,025	—	—	12	13
Food, feed, beverages and tobacco	98,265	130,582	142	156	11,832	17,797
Crude materials, inedible.....	283,155	406,032	76	22	1,053	1,164
Fabricated materials, inedible.....	226,066	251,924	176	604	151,890	169,553
End products, inedible.....	16,171	20,471	979	1,698	326,747	388,496
Special transactions—trade.....	71	109	—	—	4,170	4,694
<b>European Economic Community</b> ..	<b>840,834</b>	<b>1,188,975</b>	<b>14,297</b>	<b>15,480</b>	<b>787,363</b>	<b>805,008</b>
Live animals.....	1,120	1,238	5	4	726	1,475
Food, feed, beverages and tobacco	127,400	180,292	401	780	60,097	64,687
Crude materials, inedible.....	311,156	392,225	324	532	8,960	8,824
Fabricated materials, inedible.....	311,251	453,743	2,461	2,931	228,440	200,843
End products, inedible.....	89,552	160,950	11,019	11,092	477,900	516,317
Special transactions—trade.....	356	527	87	141	11,238	12,862
<b>Other Commonwealth and Pre-ferential Countries</b> .....	<b>588,858</b>	<b>762,216</b>	<b>24,996</b>	<b>14,936</b>	<b>571,828</b>	<b>621,239</b>
Live animals.....	460	1,114	8	—	350	356
Food, feed, beverages and tobacco	110,347	139,560	253	331	215,356	247,224
Crude materials, inedible.....	48,561	55,959	328	351	161,860	181,770
Fabricated materials, inedible.....	230,069	338,503	1,900	2,525	99,736	92,742
End products, inedible.....	195,210	222,604	22,190	11,733	88,693	93,881
Special transactions—trade.....	4,211	4,475	317	17	5,834	5,265
<b>Other Countries</b> .....	<b>1,079,021</b>	<b>1,594,664</b>	<b>29,639</b>	<b>29,699</b>	<b>1,241,266</b>	<b>1,288,632</b>
Live animals.....	9,934	9,552	58	28	108	292
Food, feed, beverages and tobacco	259,091	487,323	927	1,065	199,057	218,549
Crude materials, inedible.....	212,877	288,144	130	649	434,165	420,509
Fabricated materials, inedible.....	290,916	419,127	2,294	2,987	314,934	314,125
End products, inedible.....	307,535	388,261	26,205	24,959	283,155	326,947
Special transactions—trade.....	2,663	2,256	25	10	9,849	8,209

**8. —Domestic Exports from Canada to All Countries, to the United Kingdom and to the  
United States, by Section and Commodity, 1969 and 1970**

Section and Commodity	All Countries		United Kingdom		United States	
	1969	1970	1969	1970	1969	1970
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Live Animals</b> .....	<b>54,404</b>	<b>68,168</b>	<b>59</b>	<b>41</b>	<b>45,825</b>	<b>55,198</b>
<b>Food, Feed, Beverages and Tobacco</b>	<b>1,409,897</b>	<b>1,809,286</b>	<b>258,614</b>	<b>257,739</b>	<b>556,090</b>	<b>604,790</b>
Meat, fresh, chilled or frozen.....	65,096	96,463	4,161	6,158	52,709	78,617
Other meat and meat preparations	11,730	12,586	56	58	7,548	7,805
Fish, whole or dressed, fresh or frozen.....	56,795	52,343	4,959	4,112	37,221	33,757
Fish, fillets and blocks, fresh or frozen.....	82,922	91,797	479	573	81,694	90,062
Fish, preserved, except canned....	25,246	25,758	1	19	8,095	11,122
Fish, canned.....	37,780	24,028	21,781	6,751	2,527	2,820
Shellfish.....	49,605	52,156	1,288	1,604	44,168	45,629
Dairy produce, eggs and honey....	37,082	55,481	9,986	11,488	3,151	8,894
Barley.....	30,427	133,478	13,960	25,623	8,659	12,336
Wheat.....	472,703	687,431	88,082	92,082	2,050	2,577

**8.—Domestic Exports from Canada to All Countries, to the United Kingdom and to the United States, by Section and Commodity, 1969 and 1970—continued**

Section and Commodity	All Countries		United Kingdom		United States	
	1969	1970	1969	1970	1969	1970
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Food, Feed, Beverages and Tobacco</b>						
—concluded						
Other cereals, unmilled.....	10,239	22,653	813	1,180	4,349	4,763
Wheat flour.....	53,489	59,765	4,423	4,905	686	697
Other cereals, milled.....	10,427	13,198	292	1,336	1,793	2,668
Cereal preparations.....	17,783	19,636	100	619	15,882	17,312
Fruits and fruit preparations.....	25,171	23,316	3,422	2,636	18,383	17,389
Vegetables and vegetable preparations.....	50,361	51,730	21,089	18,491	12,202	13,505
Sugar and sugar preparations.....	19,136	20,045	174	270	15,497	16,000
Other foods and materials for foods	29,601	31,595	4,622	6,959	14,425	11,194
Oil seed cake and meal.....	14,921	16,615	14,191	16,000	181	186
Other feeds of vegetable origin....	18,999	28,365	155	231	15,776	21,677
Other fodder and feed.....	31,250	34,943	7,263	7,082	18,034	20,566
Whisky.....	189,074	183,140	364	380	183,331	176,575
Other beverages.....	7,115	7,319	16	23	6,500	6,402
Tobacco.....	62,855	56,445	56,935	49,161	1,227	2,238
<b>Crude Materials, Inedible.....</b>	<b>2,457,909</b>	<b>3,068,220</b>	<b>231,487</b>	<b>300,308</b>	<b>1,370,673</b>	<b>1,625,552</b>
Raw hides and skins.....	25,037	20,335	806	753	5,817	4,589
Fur skins, undressed.....	33,377	27,617	9,651	6,042	14,725	12,197
Other crude animal products.....	13,181	15,749	226	189	12,393	14,518
Seeds for sowing.....	12,576	14,094	1,232	2,256	9,644	9,014
Flaxseed.....	52,410	55,757	6,864	6,333	6	5
Rapeseed.....	31,182	79,009	704	793	57	20
Other oil seeds, oil nuts and oil kernels.....	10,720	11,892	1,646	2,922	4,613	4,767
Other crude vegetable products....	20,157	22,077	110	93	18,012	19,950
Pulpwood.....	24,489	26,806	1,489	1,674	16,489	13,889
Pulpwood chips.....	7,981	10,746	944	1,174	7,037	9,400
Other crude wood materials.....	25,117	40,357	115	105	17,026	22,562
Textile and related fibres.....	10,187	10,112	220	175	3,693	4,404
Iron ores and concentrates.....	333,131	475,743	29,866	53,719	231,146	312,824
Scrap iron and steel.....	30,329	33,149	20	1,111	14,188	12,758
Aluminum ores, concentrates and scrap.....	19,637	19,368	86	279	12,001	13,158
Copper in ores, concentrates and scrap.....	233,727	261,446	4,025	4,160	17,573	13,665
Lead in ores, concentrates and scrap.....	26,179	43,200	1,514	570	12,017	8,710
Nickel in ores, concentrates and scrap.....	225,312	371,593	88,582	136,332	45,148	68,502
Precious metals in ores, concentrates and scrap.....	70,255	66,927	29,941	28,856	28,172	23,180
Zinc in ores, concentrates and scrap	102,611	125,364	2,794	3,268	47,174	43,063
Radioactive ores and concentrates	24,507	26,021	14,966	8,990	477	17,032
Other metals in ores, concentrates and scrap.....	67,574	83,762	14,968	17,913	9,816	9,788
Crude petroleum.....	525,780	649,075	—	—	525,780	649,075
Natural gas.....	176,188	205,988	—	—	176,188	205,988
Coal and other crude bituminous substances.....	9,753	29,514	—	—	2,215	1,705
Asbestos unmanufactured.....	216,275	227,248	16,551	16,891	72,573	71,970
Sulphur.....	63,846	44,086	714	2,785	27,283	17,891
Other crude non-metallic minerals	56,566	60,546	3,144	2,893	33,043	35,161
Other waste and scrap materials...	9,829	10,639	309	33	6,366	5,771
<b>Fabricated Materials, Inedible....</b>	<b>5,162,695</b>	<b>5,866,452</b>	<b>531,073</b>	<b>799,713</b>	<b>3,573,320</b>	<b>3,603,442</b>
Leather and leather fabricated materials.....	10,880	10,790	3,021	1,620	6,535	7,635
Lumber, softwood.....	664,759	638,324	35,732	64,179	528,070	435,625
Lumber, hardwood.....	35,845	30,395	1,617	2,194	32,151	24,828
Shingles and shakes.....	48,135	34,589	211	99	47,067	33,931
Other sawmill products.....	9,457	8,120	422	205	8,606	7,437



**8.—Domestic Exports from Canada to All Countries, to the United Kingdom and to the United States, by Section and Commodity, 1969 and 1970—continued**

Section and Commodity	All Countries		United Kingdom		United States	
	1969	1970	1969	1970	1969	1970
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Fabricated Materials, Inedible—</b>						
concluded						
Veneer.....	29,291	27,829	577	575	25,077	22,155
Plywood.....	50,784	45,098	31,694	29,774	6,479	2,829
Other wood fabricated materials..	9,409	10,691	1,473	1,839	7,337	7,665
Wood pulp and similar pulp.....	753,488	785,229	36,584	49,541	516,879	485,454
Newsprint paper.....	1,125,801	1,110,393	60,616	59,596	919,877	872,544
Other paper for printing.....	35,884	51,235	1,124	3,311	33,044	44,407
Paperboard.....	31,836	37,078	19,118	21,707	2,114	2,237
Other paper.....	55,225	66,446	15,857	20,654	22,589	25,264
Yarn, thread, cordage, twine and rope.....	15,936	17,762	5,154	3,196	4,811	8,525
Cotton broad woven fabrics.....	12,622	13,916	8,055	8,571	931	1,118
Other broad woven fabrics.....	8,110	9,795	2,365	2,570	2,054	1,588
Other textile fabricated materials..	22,525	32,277	2,216	4,578	10,460	15,438
Oils, fats, waxes, extracts and derivatives.....	21,236	36,908	7,927	18,311	3,928	4,592
Chemical elements.....	32,021	52,386	11,973	31,691	16,871	16,568
Other inorganic chemicals.....	54,655	64,959	8,142	11,523	37,354	40,404
Organic chemicals.....	65,957	67,710	14,904	20,131	35,686	31,638
Fertilizers and fertilizer materials..	171,918	221,207	117	236	130,386	177,929
Synthetic rubber and plastics materials.....	67,948	66,056	12,480	13,516	26,170	23,332
Plastics basic shapes and forms....	19,660	20,754	1,992	1,439	8,319	9,620
Other chemical products.....	42,844	30,798	1,973	1,256	31,847	19,517
Petroleum and coal products.....	58,856	88,297	335	149	47,694	74,787
Ferro-alloys.....	6,904	12,664	3,405	6,488	3,124	2,487
Primary iron and steel.....	67,741	63,655	2,619	1,619	40,473	37,210
Castings and forgings, steel.....	55,024	57,114	8	32	52,499	54,474
Bars and rods, steel.....	31,522	57,850	1,473	9,515	23,921	28,918
Plate, sheet and strip, steel.....	75,185	131,509	4,791	7,297	47,730	80,196
Railway track material.....	6,476	8,366	2	19	2,834	3,079
Other iron and steel alloys.....	57,879	93,553	187	338	51,736	77,752
Aluminum, including alloys.....	474,752	458,638	74,400	109,300	214,555	170,665
Copper and alloys.....	300,904	474,591	93,616	163,808	132,140	148,623
Lead, including alloys.....	28,393	45,488	10,190	15,011	13,516	19,780
Nickel and alloys.....	226,079	434,214	21,958	70,771	184,628	262,589
Precious metals, including alloys..	69,394	46,501	301	426	65,875	43,939
Zinc, including alloys.....	76,849	90,955	19,710	24,874	40,374	35,165
Other non-ferrous metals and alloys	22,032	21,261	5,023	6,175	13,290	9,362
Metal fabricated basic products...	84,903	134,871	2,969	4,488	65,988	105,368
Abrasive basic products.....	45,616	45,777	2,324	2,427	40,568	38,471
Other non-metallic mineral basic products.....	37,485	49,987	801	2,179	30,216	37,722
Electricity.....	18,497	34,394	—	—	18,497	34,394
Other fabricated materials, inedible.....	21,977	26,023	1,617	2,486	13,021	16,408
<b>End Products, Inedible.....</b>	<b>5,378,202</b>	<b>5,639,558</b>	<b>69,512</b>	<b>106,899</b>	<b>4,700,222</b>	<b>4,740,373</b>
Engines and turbines, general purpose.....	24,525	43,835	565	495	11,515	23,524
Electric generators and motors.....	12,717	16,536	660	940	9,126	10,386
Other general purpose industrial machinery.....	63,041	76,957	1,805	3,396	46,308	47,346
Materials handling machinery and equipment.....	71,028	69,054	480	561	54,249	47,902
Drilling, excavating, mining machinery.....	40,119	43,336	1,195	1,616	21,688	18,542
Metalworking machinery.....	29,465	29,166	1,577	1,890	24,157	20,880
Woodworking machinery and equipment.....	21,539	25,702	690	1,056	12,393	13,882
Construction machinery and equipment.....	23,803	18,983	130	272	13,568	11,127
Plastics industry machinery and equipment.....	27,611	33,798	746	915	25,722	31,653

**8.—Domestic Exports from Canada to All Countries, to the United Kingdom and to the United States, by Section and Commodity, 1969 and 1970—concluded**

Section and Commodity	All Countries		United Kingdom		United States	
	1969	1970	1969	1970	1969	1970
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>End Products, Inedible—</b>						
concluded						
Pulp and paper industries machinery.....	15,645	14,250	148	110	11,561	10,855
Other special industry machinery.....	39,423	40,875	2,465	1,780	25,638	26,038
Soil preparation, seeding, fertilizing machinery.....	26,265	30,063	14	16	25,435	28,332
Combine reaper-threshers and parts.....	78,185	54,860	925	411	72,973	51,434
Other haying and harvesting machinery.....	35,326	39,195	1	23	33,620	37,832
Other agricultural machinery and equipment.....	16,351	15,446	193	117	15,120	14,410
Tractors.....	24,372	24,822	156	57	23,732	24,181
Railway and street railway rolling-stock.....	34,498	35,631	2	1	24,027	20,110
Passenger automobiles and chassis.....	1,839,225	1,721,865	1,562	43	1,760,312	1,649,131
Trucks, truck tractors and chassis.....	562,041	553,954	—	1,278	523,821	480,156
Other motor vehicles.....	148,073	185,537	59	246	143,525	180,493
Motor vehicle engines and parts.....	289,265	329,217	1,555	1,693	275,395	321,285
Motor vehicle parts, except engines.....	722,935	781,889	3,530	1,496	652,168	702,585
Ships and boats.....	27,277	42,183	1,833	1,723	20,274	34,644
Aircraft, complete with engines.....	66,027	88,470	381	—	18,322	3,066
Aircraft, engines and parts.....	102,718	109,983	1,304	2,246	84,281	87,722
Aircraft parts, except engines.....	159,665	180,649	1,131	8,790	139,943	147,798
Other vehicles.....	3,903	4,619	1	1	3,853	4,392
Rubber tires and tubes.....	10,189	19,890	24	109	7,397	16,024
Television and radio sets and phonographs.....	30,993	29,834	124	99	29,918	28,297
Other communication and related equipment.....	169,266	202,329	4,035	20,711	121,350	120,634
Heating and refrigeration equipment.....	20,737	26,332	1,888	2,381	14,412	19,115
Cooking equipment for food.....	3,961	5,294	1,793	2,722	1,004	1,205
Electric lighting and distribution equipment.....	61,828	62,134	2,657	2,773	44,864	40,704
Navigation equipment and parts.....	39,814	41,886	1,947	652	31,340	33,875
Other measuring, controlling, laboratory, medical and optical equipment.....	57,510	66,073	6,134	6,563	35,986	37,897
Hand tools and miscellaneous cutlery.....	10,608	13,812	1,048	1,347	4,537	6,073
Office machines and equipment.....	71,152	114,150	7,080	11,719	46,145	71,710
Other equipment and tools.....	52,441	60,145	2,766	2,681	39,549	44,913
Apparel and apparel accessories.....	68,487	77,927	2,495	2,170	48,799	54,534
Footwear.....	9,765	13,727	302	198	9,031	13,046
Toys, games, sporting, recreation equipment.....	24,852	30,506	855	1,143	19,748	23,985
Other personal and household goods.....	27,995	30,842	2,851	3,946	13,626	14,429
Medicinal and pharmaceutical products.....	22,476	25,667	592	495	3,563	3,137
Medical, ophthalmic, orthopaedic supplies.....	3,602	5,313	237	381	848	1,619
Printed matter.....	24,033	30,007	1,252	951	19,505	25,341
Photographic goods.....	17,331	23,914	1,612	1,591	10,357	18,366
Firearms, ammunition and ordnance.....	78,713	66,043	2,420	8,441	73,216	53,247
Containers and closures.....	19,105	20,713	322	685	15,087	14,720
Prefabricated buildings and structures.....	21,461	31,043	300	487	19,156	25,973
Other end products.....	26,842	31,100	3,671	3,481	18,057	21,821
<b>Special Transactions—Trade.....</b>	<b>35,205</b>	<b>31,180</b>	<b>491</b>	<b>456</b>	<b>27,413</b>	<b>23,357</b>
Shipments valued at less than \$100 each.....	15,306	14,189	283	275	13,246	12,084
Other special transactions—trade.....	19,899	16,991	208	181	14,166	11,274
<b>Totals, Domestic Exports.....</b>	<b>14,498,224</b>	<b>16,473,865</b>	<b>1,091,236</b>	<b>1,465,155</b>	<b>10,273,542</b>	<b>10,652,713</b>

<sup>1</sup> Less than \$500.

**9.—Imports into Canada from All Countries, from the United Kingdom and from the United States, by Section and Commodity, 1969 and 1970**

Section and Commodity	All Countries		United Kingdom		United States	
	1969	1970	1969	1970	1969	1970
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Live Animals.....</b>	<b>18,711</b>	<b>30,453</b>	<b>245</b>	<b>510</b>	<b>17,270</b>	<b>27,807</b>
<b>Food, Feed, Beverages and Tobacco</b>	<b>1,043,951</b>	<b>1,085,099</b>	<b>49,313</b>	<b>48,967</b>	<b>508,296</b>	<b>487,875</b>
Meat, fresh, chilled or frozen.....	98,612	96,911	646	768	33,698	16,468
Other meat and meat preparations	24,705	20,653	413	381	12,904	10,049
Fish and marine animals.....	41,186	53,348	1,002	1,372	23,309	30,078
Dairy produce, eggs and honey....	30,089	30,576	1,128	1,044	11,488	11,033
Indian corn, shelled.....	37,413	28,681	—	—	37,413	28,681
Other cereals and cereal preparations.....	36,429	36,329	5,106	5,398	27,623	25,598
Bananas and plantains, fresh.....	35,141	36,288	—	—	—	6
Grapes, fresh.....	27,153	26,657	—	—	25,462	24,800
Oranges, mandarins and tangerines, fresh.....	32,269	34,367	6	—	25,802	25,825
Other fresh fruits and berries.....	54,679	55,532	3	1	50,063	50,298
Fruits, dried or dehydrated.....	17,923	15,954	60	30	7,292	7,661
Orange juice and concentrates.....	23,126	19,780	2	2	15,308	15,706
Other fruit juices and concentrates.....	11,385	13,539	465	356	8,271	9,598
Fruits and products, canned.....	33,552	30,478	871	964	18,338	16,652
Other fruits and fruit preparations.....	14,432	11,331	187	72	3,219	2,246
Nuts, except oil nuts.....	20,357	21,428	451	117	8,097	10,516
Tomatoes, fresh.....	22,351	23,490	—	—	11,930	11,111
Other fresh vegetables.....	68,298	72,061	1	1	65,507	67,854
Other vegetables and vegetable preparations.....	31,315	32,265	808	1,166	14,397	15,402
Raw sugar.....	70,287	85,275	—	—	—	—
Refined sugar, molasses and syrups	7,352	7,010	81	182	3,190	2,334
Sugar preparations and confectionery.....	17,936	18,726	9,191	10,306	3,372	2,956
Cocoa and chocolate.....	24,764	32,157	2,221	3,450	5,724	5,581
Coffee.....	82,105	97,956	26	6	17,697	18,779
Tea.....	22,220	21,035	4,739	2,826	717	739
Other foods and materials for foods	48,033	52,331	2,132	2,271	31,708	32,993
Oil seed cake and meal.....	25,097	25,968	2	—	25,095	25,967
Other fodder and feed.....	9,868	10,293	65	143	8,957	8,833
Distilled alcoholic beverages.....	34,119	32,107	17,358	15,736	3,448	2,872
Other beverages.....	31,141	32,730	1,674	1,741	1,992	1,639
Tobacco.....	10,610	9,844	676	634	6,277	5,600
<b>Crude Materials, Inedible.....</b>	<b>1,085,460</b>	<b>1,171,848</b>	<b>27,755</b>	<b>24,093</b>	<b>451,667</b>	<b>535,488</b>
Fur skins, undressed.....	23,457	18,418	2,636	2,123	11,071	7,642
Other crude animal products.....	20,945	19,084	959	732	17,334	15,318
Soybeans.....	40,960	46,967	—	—	40,956	46,963
Other oil seeds, oil nuts and oil kernels.....	18,289	20,523	40	36	8,880	17,755
Rubber and allied gums, natural....	26,587	23,349	103	14	1,587	1,354
Other crude vegetable products....	24,693	31,707	132	274	18,937	25,672
Crude wood materials.....	29,370	30,032	1	1	29,317	29,949
Wool and fine animal hair.....	27,919	21,210	15,474	11,020	2,042	1,677
Cotton.....	52,979	41,908	127	82	20,898	31,299
Man-made fibres.....	22,928	24,574	4,470	5,331	16,664	16,777
Other textile fibres.....	5,207	4,018	55	11	887	590
Iron ores and concentrates.....	29,450	28,228	—	—	27,037	26,806
Scrap iron and steel.....	18,056	26,131	—	—	18,044	26,110
Aluminum ores, concentrates and scrap.....	102,942	99,590	1	2	22,265	29,299
Other metals in ores, concentrates and scrap.....	42,782	89,603	880	1,748	22,048	38,661

<sup>1</sup> Less than \$500.

**9.—Imports into Canada from All Countries, from the United Kingdom and from the United States, by Section and Commodity, 1969 and 1970—continued**

Section and Commodity	All Countries		United Kingdom		United States	
	1969	1970	1969	1970	1969	1970
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Crude Materials, Inedible—</b>						
concluded						
Coal.....	114,603	150,832	—	—	114,603	150,832
Crude petroleum.....	393,453	415,161	—	—	726	—
Other crude bituminous substances	16,298	5,397	—	<sup>1</sup>	16,276	5,360
Abrasives, natural.....	10,595	10,536	426	506	8,912	9,096
Phosphate rock.....	14,858	14,871	—	61	14,617	14,433
Other crude non-metallic minerals..	38,281	38,326	1,997	1,615	28,716	30,144
Other waste and scrap materials...	10,807	11,382	454	535	9,852	9,753
<b>Fabricated Materials, Inedible....</b>	<b>2,905,331</b>	<b>2,885,422</b>	<b>198,826</b>	<b>193,216</b>	<b>1,911,505</b>	<b>1,914,943</b>
Leather and leather fabricated materials.....	28,251	27,745	10,807	9,927	14,338	13,759
Rubber fabricated materials.....	55,284	52,887	1,460	1,306	50,395	48,598
Lumber.....	51,040	38,842	18	—	44,498	34,759
Veneer, plywood and wood building boards.....	48,694	34,676	283	243	20,969	14,753
Other wood fabricated materials..	19,291	19,821	337	279	15,517	15,799
Wood pulp and similar pulp.....	6,910	9,781	3	12	5,270	9,761
Paper and paperboard.....	81,306	80,562	1,554	1,363	76,557	76,424
Cotton yarn and thread.....	18,061	13,409	3,714	2,784	5,334	5,195
Man-made fibre yarn and thread..	41,099	51,623	2,809	3,472	20,157	25,293
Other yarn and thread.....	13,670	15,318	5,803	3,635	3,066	6,643
Cordage, twine and rope.....	7,549	9,622	910	1,003	1,298	2,311
Broad woven fabrics, wool and hair	25,505	21,555	11,704	8,669	2,961	1,590
Broad woven fabrics, cotton.....	62,044	56,985	1,466	1,146	29,463	27,576
Broad woven fabrics, man-made...	37,854	41,012	1,548	1,564	12,900	10,551
Broad woven fabrics, mixed fibres.	57,026	50,997	4,426	3,681	30,760	27,406
Other broad woven fabrics.....	28,352	25,882	764	700	2,078	1,760
Coated or impregnated fabrics.....	40,706	45,221	3,612	3,004	32,071	35,448
Other textile fabricated materials..	71,068	93,910	12,846	30,397	36,196	36,203
Vegetable oils and fats, except essential oils.....	28,498	34,898	3,347	1,107	8,717	15,076
Other oils, fats, waxes, extracts, derivatives.....	29,471	32,472	739	603	26,202	29,411
Inorganic chemicals.....	77,731	140,322	6,556	5,631	62,496	110,671
Organic chemicals.....	128,030	133,543	10,537	11,811	92,589	89,486
Fertilizers and fertilizer materials.	11,130	13,756	41	58	10,292	13,202
Synthetic and reclaimed rubber...	38,630	42,231	1,096	1,792	34,094	38,284
Plastics materials, not shaped.....	114,830	112,190	3,086	2,244	100,242	98,128
Plastic film and sheet.....	50,096	49,944	2,927	2,650	41,361	41,309
Other plastics basic shapes and forms.....	37,910	37,484	786	914	33,857	33,670
Dyestuffs, except dyeing extracts..	24,198	24,711	3,077	3,292	8,511	8,259
Pigments, lakes and toners.....	19,082	20,601	1,154	1,095	14,795	15,264
Paints and related products.....	15,973	17,106	521	752	15,131	15,963
Other chemical products.....	134,683	119,707	4,970	3,046	112,785	107,593
Fuel oil.....	131,436	122,225	253	390	17,433	11,477
Lubricating oils and greases.....	24,624	19,317	218	163	21,063	17,206
Coke of petroleum and coal.....	20,918	26,585	—	—	19,084	23,113
Other petroleum and coal products.	46,546	37,608	1,822	1,062	18,426	15,331
Bars and rods, steel.....	67,837	46,955	2,732	2,737	30,356	19,138
Plate, sheet and strip, steel.....	155,519	128,875	5,861	5,619	100,527	79,065
Structural shapes and sheet piling, steel.....	50,969	48,407	8,786	8,693	21,053	22,570
Pipes and tubes, iron and steel....	60,931	65,736	4,926	5,223	35,351	34,713
Wire and wire rope, steel.....	27,583	25,096	8,185	8,153	7,765	4,945
Other iron and steel and alloys....	98,085	125,845	3,409	4,448	82,178	112,013

<sup>1</sup> Less than \$500.



**9.—Imports into Canada from All Countries, from the United Kingdom and from the United States, by Section and Commodity, 1969 and 1970—continued**

Section and Commodity	All Countries		United Kingdom		United States	
	1969	1970	1969	1970	1969	1970
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Fabricated Materials, Inedible—</b>						
concluded						
Aluminum, including alloys.....	84,972	78,817	3,698	2,326	75,561	70,905
Copper and alloys.....	46,751	40,940	4,928	3,851	39,591	32,593
Nickel and alloys.....	46,556	44,091	716	306	15,422	10,073
Precious metals, including alloys..	48,189	15,613	9,635	4,335	38,522	10,751
Tin, including alloys.....	18,116	20,291	226	266	2,394	3,960
Other non-ferrous metals and alloys	25,872	22,301	411	1,022	19,195	15,145
Bolts, nuts and screws.....	61,195	60,300	907	1,051	55,676	52,536
Other basic hardware.....	80,612	91,232	3,541	3,265	67,482	79,337
Chain.....	15,376	14,033	2,216	2,131	7,681	7,524
Valves.....	38,812	44,086	3,881	5,368	30,415	32,512
Pipe fittings.....	31,245	33,495	2,266	3,080	23,360	24,695
Other metal fabricated basic products.....	70,163	65,227	6,900	7,170	55,755	51,489
Clay bricks, clay tiles and refractories.....	38,459	44,411	2,237	2,635	27,231	33,013
Sheet and plate glass.....	26,340	20,992	4,532	759	8,541	10,546
Other glass basic products.....	27,774	31,362	1,936	2,004	22,372	25,554
Abrasive basic products.....	20,139	19,030	419	348	17,589	16,492
Natural and synthetic gem stones	20,213	16,803	2,046	1,551	2,337	2,451
Other non-metallic mineral basic products.....	33,043	31,948	2,916	2,590	25,500	24,881
Electricity.....	8,674	12,369	—	—	8,674	12,369
Other fabricated materials, inedible.....	64,411	62,619	5,321	4,494	49,968	48,414
<b>End Products, Inedible.....</b>	<b>8,884,929</b>	<b>8,605,604</b>	<b>501,608</b>	<b>460,343</b>	<b>7,206,826</b>	<b>6,819,620</b>
A. MACHINERY.....	1,793,493	1,783,268	141,328	142,920	1,470,241	1,421,809
Engines and turbines, diesel, general purpose.....	23,892	25,370	6,264	7,577	17,090	15,656
Engines and turbines, general purpose, <i>n.e.s.</i> .....	46,104	43,707	7,513	8,900	32,623	30,507
Electric generators and motors.....	67,606	62,575	17,030	11,700	43,034	41,760
Bearings.....	65,525	66,292	4,600	4,948	49,831	46,446
Other mechanical power transmission equipment.....	54,556	49,284	4,789	4,441	48,696	43,433
Compressors, blowers and vacuum pumps.....	44,669	48,824	5,112	5,617	36,598	38,576
Pumps, except oil well pumps.....	28,481	31,315	1,511	1,985	25,104	27,179
Packaging machinery.....	32,357	32,153	1,372	1,683	28,093	27,441
Other general purpose industrial machinery.....	76,710	78,054	6,721	6,091	64,396	67,200
Conveyors and conveying systems	15,535	14,722	1,913	1,981	11,195	10,595
Elevators and escalators.....	6,545	7,870	375	1,253	6,108	6,446
Industrial trucks, tractors, trailers, stackers.....	40,129	37,847	4,728	4,621	34,227	31,929
Hoisting machinery.....	42,119	42,119	2,705	2,705	33,754	33,754
Other materials handling equipment.....	75,861	29,306	1,889	1,324	66,708	27,493
Drilling machinery and drill bits..	70,283	81,745	905	926	65,893	76,596
Power shovels.....	42,110	39,598	1,590	409	36,649	35,678
Bulldozing and similar equipment	37,415	9,492	348	239	33,403	9,074
Front end loaders.....	67,290	49,535	539	680	64,195	48,285
Other excavating machinery.....	28,318	22,599	510	193	27,266	21,649
Mining, oil and gas machinery.....	55,770	65,411	5,984	11,764	44,620	47,758
Construction and maintenance machinery.....	51,453	45,429	1,418	1,462	46,595	40,599
Machine tools, metalworking.....	110,637	127,888	11,705	11,095	75,683	97,081
Welding apparatus and equipment	15,876	17,468	676	451	14,648	16,581
Rolling-mill machinery.....	12,614	21,713	3,242	4,166	8,236	10,586
Other metalworking machinery...	58,252	69,582	6,245	7,492	44,142	53,324

**9. Imports into Canada from All Countries, from the United Kingdom and from the United States, by Section and Commodity, 1969 and 1970—continued**

Section and Commodity	All Countries		United Kingdom		United States	
	1969	1970	1969	1970	1969	1970
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>End Products, Inedible—</b>						
continued						
Pulp and paper industries machinery	41,111	62,661	5,834	4,013	26,851	31,437
Printing presses	25,267	30,218	1,017	3,167	18,258	20,855
Other printing machinery and equipment	26,982	31,141	1,298	1,240	24,271	27,516
Spinning, weaving and knitting machinery	31,331	34,662	4,068	3,925	16,799	16,743
Other textile industries machinery	30,863	31,995	2,736	1,655	22,122	22,939
Food, beverages and tobacco machinery	32,737	34,859	3,833	2,572	23,473	25,426
Plastics and chemical industry machinery	45,721	42,163	1,248	818	37,462	34,107
Other special industry machinery	80,372	86,540	2,486	4,390	63,985	66,441
Soil preparation, seeding, fertilizing machinery	29,344	20,507	527	401	27,157	18,617
Combine reaper-threshers	38,400	20,431	1,280	1,015	34,900	18,420
Other haying and harvesting machinery	34,734	30,000	270	206	33,035	28,528
Other agricultural machinery and equipment	54,243	49,596	809	1,651	51,497	45,990
Wheel tractors, new	77,845	64,719	10,365	10,198	62,326	45,576
Track-laying tractors and used tractors	23,002	41,527	624	243	22,305	39,227
Tractor engines and tractor parts	93,554	82,348	8,054	3,723	80,768	74,364
<b>B. TRANSPORTATION AND COMMUNICATION EQUIPMENT</b>	4,508,950	4,156,951	151,455	112,228	3,976,689	3,587,165
Railway and street railway rolling-stock	30,733	32,704	1,586	2,036	27,974	29,972
Convertible automobiles, soft top, new <sup>1</sup>	49,667	28,126	6,215	8,108	36,132	15,049
Sedans, new <sup>1</sup>	908,573	781,531	64,417	26,120	715,451	600,232
Other passenger automobiles and chassis <sup>1</sup>	61,978	68,190	4,733	2,285	39,033	45,009
Trucks, truck tractors and chassis <sup>1</sup>	236,991	232,574	164	761	227,437	218,482
Other motor vehicles	83,485	101,683	6,261	5,089	67,580	78,501
Motor vehicle engines	313,491	270,006	1,326	4,571	273,890	212,113
Motor vehicle engine parts	127,078	104,252	1,387	1,939	121,436	95,641
Motor vehicle parts, except engines	1,764,793	1,653,049	10,452	11,506	1,740,970	1,621,072
Marine engines and parts	43,736	40,507	2,671	1,709	37,650	36,248
Ships, boats and parts, except engines	25,727	21,707	3,578	1,955	15,433	14,021
Aircraft, complete with engines	202,649	205,883	10,418	5,859	191,610	197,275
Aircraft engines and parts	85,850	75,717	12,033	13,809	72,832	60,014
Aircraft parts, except engines	112,282	102,830	3,993	3,071	102,240	93,608
Other transportation equipment	68,406	59,622	3,890	6,687	43,406	29,370
Telephone and telegraph equipment	36,639	43,046	2,579	2,774	27,310	33,131
Television and radio sets and phonographs	92,343	90,485	432	418	44,723	35,341
Electronic tubes and semi-conductors	62,596	58,740	4,132	2,675	50,471	49,676
Other telecommunication and related equipment	201,933	186,301	11,187	10,855	141,082	122,412
<b>C. OTHER EQUIPMENT AND TOOLS</b>	1,274,897	1,290,713	67,758	68,866	1,059,035	1,060,177
Air conditioning and refrigeration equipment	81,124	87,386	3,408	2,388	70,154	74,233
Electric lighting fixtures and portable lamps	52,306	47,656	976	1,080	42,909	38,561

<sup>1</sup> Imports from the United States are valued at inter-company transfer prices.

**9.—Imports into Canada from All Countries, from the United Kingdom and from the United States, by Section and Commodity, 1969 and 1970—concluded**

Section and Commodity	All Countries		United Kingdom		United States	
	1969	1970	1969	1970	1969	1970
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>End Products, Inedible—</b>						
concluded						
Switchgear and protective equip-						
ment.....	19,104	25,001	1,843	3,208	10,910	14,048
Industrial control equipment.....	36,754	33,184	1,693	2,225	32,691	28,547
Other electric lighting, distribution						
equipment.....	65,446	63,518	7,087	9,613	44,774	43,571
Auxiliary electric equipment for						
engines.....	70,212	71,364	2,615	2,775	65,248	63,729
Electrical properties measuring in-						
struments.....	36,181	35,023	3,779	3,190	29,297	28,847
Miscellaneous measuring, controlling						
instruments.....	50,249	57,501	1,704	2,725	46,031	52,042
Medical and related equipment....	52,505	38,032	1,578	1,067	44,996	33,073
Navigation equipment.....	28,747	18,283	1,123	699	27,315	17,314
Other measuring, laboratory equip-						
ment, etc.....	153,680	159,366	6,702	5,578	125,207	130,309
Safety and sanitation equipment...	30,207	31,867	950	1,305	28,490	29,628
Service industry equipment.....	37,098	35,005	735	784	34,670	32,333
Furniture and fixtures.....	40,394	39,605	1,513	1,430	28,367	26,144
Hand tools and cutlery.....	76,721	71,461	7,715	7,364	55,438	50,789
Electronic computers.....	160,527	176,290	4,143	6,534	151,155	163,874
Other office machines and equip-						
ment.....	107,233	137,711	8,279	8,378	72,241	96,007
Miscellaneous equipment and tools.	176,411	162,458	11,828	8,525	149,140	137,128
<b>D. PERSONAL AND HOUSEHOLD</b>						
Goods.....	552,121	558,102	78,647	68,037	146,563	153,950
Outerwear, except knitted.....	78,302	76,940	3,943	3,182	13,612	15,514
Outerwear, knitted.....	51,843	53,276	5,662	5,624	2,814	3,066
Other apparel and apparel acces-						
sories.....	52,513	49,582	8,564	6,068	10,011	10,202
Footwear.....	65,063	74,084	8,429	8,098	3,043	3,180
Watches, clocks, jewellery and						
silverware.....	39,133	39,089	7,038	5,957	10,556	11,896
Sporting and recreation equipment.						
Games, toys and children's vehi-	34,558	41,393	2,728	3,108	15,871	18,261
cles.....	36,091	36,675	5,073	3,295	13,025	14,475
House furnishings.....	56,861	53,019	10,073	8,212	20,694	20,543
Kitchen utensils, cutlery and table-						
ware.....	63,453	63,420	19,291	18,149	20,175	20,877
Other personal and household goods	74,302	70,624	7,847	6,344	36,762	35,938
<b>E. MISCELLANEOUS END PRODUCTS..</b>	755,469	816,570	62,420	68,289	554,298	596,517
Medicinal and pharmaceutical pro-						
ducts.....	66,898	79,794	9,605	12,203	38,280	46,512
Medical, ophthalmic, orthopaedic						
supplies.....	33,284	60,482	895	1,856	25,673	47,614
Newspapers, magazines and peri-						
odicals.....	64,424	65,809	1,300	1,198	57,328	58,580
Books and pamphlets.....	122,344	126,078	8,378	11,105	99,125	99,737
Other printed matter.....	47,166	52,778	1,812	3,068	41,426	45,104
Stationers' and office supplies.....	38,012	38,969	3,994	3,833	28,023	28,604
Unexposed photographic film and						
plates.....	46,954	52,323	13,833	18,661	25,943	25,288
Other photographic goods.....	108,709	113,591	2,258	1,866	85,627	90,993
Containers and closures.....	68,632	71,049	1,860	2,612	62,407	64,553
Other end products, inedible.....	159,045	155,696	18,484	11,888	90,466	89,532
<b>Special Transactions—Trade.....</b>	<b>191,991</b>	<b>161,349</b>	<b>13,226</b>	<b>11,133</b>	<b>147,674</b>	<b>119,186</b>
Shipments valued at less than \$200						
each.....	98,379	70,133	7,667	8,446	74,009	43,087
Other special transactions—trade..	93,612	91,216	5,559	2,687	73,665	76,100
<b>Totals, Imports.....</b>	<b>14,130,372</b>	<b>13,939,775</b>	<b>790,973</b>	<b>738,262</b>	<b>10,243,232</b>	<b>9,904,919</b>





*The movement of hundreds of Canadian Hereford cattle to Japan by air in the summer of 1971 demonstrated that prime breeding stock can be moved in first-class condition and at reasonable cost by this means. Giant Hercules military-type transports were used for this purpose.*

### Section 5.—Trade by Section and by Stage of Fabrication

Tables 10 and 11 present historical series of Canada's external trade for the period 1950-70 by section and by stage of fabrication with a view to throwing light on the changes in the anatomy of Canada's international trade. The estimates for the years prior to 1958 are subject to some limitations because of the introduction of the revised commodity trade classifications in the early 1960s.

**Methodology.**—To allocate exports and imports into the statistical framework based on stage of fabrication, viz., crude materials, fabricated materials and end products, requires a secondary classification of the commodities in certain sections of the Standard Commodity Classification (SCC). Live Animals (Section I), being a natural product, are considered as crude materials. Section II (Food, Feed, Beverages and Tobacco) is distributed as follows: crude materials include natural products not processed beyond cleaning or preparation for shipment, such as fresh fruits and vegetables, raw sugar, etc.; fabricated materials include commercial feed stocks and commodities which are further processed rather than used for direct consumption; and end products comprise prepared pet feeds and commodities which require no further processing but are used directly for consumption, such as cheese, canned foods, whisky, cigars and cigarettes. Sections III, IV and V are as they are defined in the SCC. Thus, Section V (Inedible End Products) consists of articles rather than materials, that is to say, finished commodities which have attained their final degree of processing together with specific parts and accessories of machinery which are classified with the machinery. Section VI (Special Trade Transactions), which contains comparatively few classes, has been distributed on the basis of special studies.



**Exports.**—Canada's exports followed a generally upward trend during the two decades from 1950, with a steady increase from 1954. The value of domestic exports advanced more than five times up to the end of 1970 to \$16,473,900,000, with the major sections showing varying rates of change. This growth was reflected in all sections except Live Animals where exports in 1970 were about four fifths of the value in 1950. Exports of Food, Feed, Beverages and Tobacco more than doubled to \$1,800,300,000; Inedible Crude Materials were up roughly nine times to \$3,068,200,000; Inedible Fabricated Materials more than tripled to \$5,866,500,000; and Inedible End Products, where the growth rate was most pronounced, were over 20 times higher at \$5,639,600,000. In 1970, domestic exports were 14 p.c. above those in 1969, Inedible Fabricated Materials rose 14 p.c. and Inedible End Products continued their upward trend by rising 5 p.c. The largest relative growth was recorded in Food, Feed, Beverages and Tobacco at 28 p.c., followed by a gain in Inedible Crude Materials of 25 p.c. The magnitude of the changes was substantial, following declines in 1969.

Analysis by stage of fabrication shows that 1970 exports of crude materials at \$4,307,600,000 were four and a half times those of 1950. Over the same period, exports of fabricated materials more than tripled to \$6,083,400,000, and end products were up 14 times to \$6,082,800,000. After a decline of 6 p.c. in 1969, exports of crude materials increased by 30 p.c. in 1970. Shipments of fabricated materials and end products showed increases of 14 p.c. and 4 p.c., respectively.

Over the 1950-70 period, the importance of end products in Canada's exports gained relatively to crude and fabricated materials. The relative contribution of crude materials to domestic exports declined from 30 p.c. to 26 p.c., and that of fabricated materials from 56 p.c. to 37 p.c. On the other hand, the share of end products increased from 14 p.c. to 37 p.c. Newsprint maintained its predominant place among fabricated materials, while commodities ranging from automotive products and aircraft to wearing apparel contributed to the rising importance of end products.

The key importance of the United States among Canada's export destinations was enhanced, as the proportion of exports going to that market increased from an average of 60 p.c. in the early 1950s to an average of 68 p.c. in 1968-70. The proportion of domestic exports of crude materials and fabricated materials going to that country declined from 53 p.c. and 77 p.c., to 44 p.c. and 60 p.c., respectively, in 1970, whereas that of end products rose from approximately 42 p.c. to 84 p.c. The United Kingdom's share of Canadian domestic exports declined from 15 p.c. to about 9 p.c. in the same comparison but the representation of end products in that share was only slightly lower in 1970.

**Imports.**—Imports advanced four and a half times in the 1950-70 period to reach \$13,939,800,000. Between 1960 and 1970, however, imports rose 154 p.c. against an increase of 213 p.c. in exports. Thus, while expanding imports reflected the increasing industrial growth and prosperity of Canadians during the 1960s, the rise in exports was larger in response to vigorous demand for Canadian commodities abroad. During the whole period, imports of Food, Feed, Beverages and Tobacco nearly tripled to \$1,085,100,000, Inedible Crude Materials rose 57 p.c. to \$1,171,800,000, Inedible Fabricated Materials increased three and a half times to \$2,885,400,000, and Inedible End Products increased nearly eightfold to \$8,605,600,000. Imports of Live Animals, which fluctuate from year to year, reached a high level of \$30,450,000 in 1970. Special Trade Transactions in 1970 amounted to \$161,350,000, continuing the decline from the peak of \$322,000,000 in 1966. The proportion of total imports represented by Inedible End Products rose from 37 p.c. to 62 p.c., the corresponding reduction being borne by other sections. Food, Feed, Beverages and Tobacco and Inedible Crude Materials, each of which accounted for about 8 p.c. of total imports in 1970, had represented 12 p.c. and 24 p.c., respectively, in 1950. Proportionally, Inedible Fabricated Materials narrowed from 26 p.c. to 21 p.c.

From the viewpoint of the stage of fabrication, imports of crude and fabricated materials accounted for a steadily decreasing proportion of total imports, dropping from 30 p.c.

each in 1950 to 13 p.c. and 22 p.c., respectively, in 1970. On the other hand, imports of end products expanded their relative importance from 39 p.c. to 65 p.c. Thus, nearly two thirds of Canadian imports are currently end products, prominent among which are heavy machinery, equipment and tools required for capital investment in and operation of Canadian industries, together with the important group of automotive products.

From an already commanding position of 67 p.c. in 1950, the share of Canada's total imports from the United States rose further to 71 p.c. in 1970. The proportion of crude materials imported from that country declined from 57 p.c. to some 49 p.c. of the total imports of crude materials, whereas its share of fabricated materials and end products rose slightly from 63 p.c. to 64 p.c. and from 77 p.c. to 78 p.c., respectively. The share of the United Kingdom in Canadian imports fell from 13 p.c. in 1950 to about 5 p.c., all stages of fabrication contributing to the decline. Canada has recently been importing rapidly rising quantities of fabricated materials and end products from the European Economic Community and some Pacific Rim countries, notably Japan.

**Conclusion.**—It has been recognized that the Canadian economy has been in a rapid process of diversification, attaining a high level of sophistication in its industrial development and supporting a broadening spectrum of industrial activity for both the home and the export markets. In the process, primary products are becoming progressively less important in Canada's foreign trade. End products, in contrast, have expanded their proportion in both exports and imports, due in particular to the increased two-way flow of automotive products arising from the Canada-United States Automotive Products Agreement of 1965.



A shipment of 330 European automobiles crossing Nova Scotia after entering the country at the Port of Halifax.

## 10.—Domestic Exports by Section and by Stage of Fabrication, 1950-70

Year	Sect. I	Sect. II				Sect. III	Sect. IV	Sect. V
	Live Animals	Food, Feed, Beverages and Tobacco				Crude Materials, Inedible	Fabricated Materials, Inedible	End Products, Inedible
		Crude Materials	Fabricated Materials	End Products	Total			
ALL COUNTRIES								
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
1950.....	84,592	510,900	134,700	169,703	815,302	332,917	1,594,641	264,926
1952.....	5,974	989,900	181,091	147,820	1,318,812	467,143	2,033,701	439,048
1954.....	19,407	630,031	149,058	183,582	962,672	502,040	2,030,945	331,972
1956.....	13,401	750,432	152,507	180,528	1,033,467	872,967	2,441,679	325,609
1958.....	101,534	699,896	140,904	191,450	1,032,250	963,137	2,246,818	434,500
1959.....	55,790	660,221	159,886	199,584	1,019,691	1,086,994	2,461,089	386,658
1960.....	41,038	614,277	141,402	191,283	946,962	1,114,543	2,729,389	409,683
1961.....	66,901	865,451	138,688	193,664	1,197,803	1,195,442	2,777,345	505,591
1962.....	68,054	808,022	151,225	212,888	1,172,135	1,361,595	2,907,126	654,763
1963.....	41,971	1,012,475	157,532	249,850	1,419,857	1,425,951	3,106,898	779,138
1964.....	34,514	1,298,519	210,942	296,426	1,805,886	1,616,145	3,502,496	1,109,006
1965.....	79,133	1,142,518	194,010	293,290	1,629,818	1,763,701	3,728,769	1,300,145
1966.....	78,002	1,362,808	204,236	321,247	1,888,293	1,947,625	4,012,068	2,119,324
1967.....	42,313	1,068,703	187,059	346,533	1,602,295	2,108,298	4,229,365	3,115,933
1968.....	59,365	1,002,886	171,383	379,488	1,553,757	2,467,578	4,855,098	4,296,464
1969.....	54,404	803,233	180,459	426,115	1,409,807	2,457,909	5,162,695	5,378,202
1970.....	68,168	1,162,403	215,863	422,021	1,800,286	3,068,220	5,866,452	5,639,558
UNITED KINGDOM								
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
1950.....	7	185,672	43,858	45,189	274,719	47,211	140,023	5,850
1952.....	12	241,238	39,428	2,327	282,993	95,694	356,227	9,424
1954.....	18	184,747	36,323	14,045	235,115	86,914	324,446	4,476
1956.....	22	232,322	46,878	13,734	292,934	130,636	380,952	6,558
1958.....	275	218,328	33,790	29,672	281,790	139,653	330,172	19,611
1959.....	255	209,622	45,016	32,788	287,425	152,578	326,776	18,656
1960.....	210	195,553	42,975	19,718	258,246	178,936	460,357	17,338
1961.....	184	179,656	39,273	19,312	238,240	204,539	440,073	26,069
1962.....	105	191,434	51,235	27,612	270,282	172,050	435,774	30,624
1963.....	46	213,133	52,432	32,198	297,762	216,316	457,459	34,555
1964.....	42	207,202	54,186	50,334	311,721	236,357	602,570	48,586
1965.....	79	207,336	60,108	34,861	302,305	256,260	567,484	47,693
1966.....	37	195,683	53,446	37,543	286,672	231,552	547,701	56,058
1967.....	56	199,682	45,514	48,114	293,310	246,431	570,604	58,309
1968.....	379	180,856	39,102	51,041	270,999	276,006	591,268	70,512
1969.....	59	177,170	38,409	43,035	258,614	231,487	531,073	69,512
1970.....	41	187,072	40,211	30,457	257,739	300,308	799,713	106,899
UNITED STATES								
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
1950.....	83,888	185,424	26,034	75,437	286,896	222,462	1,311,568	105,726
1952.....	5,554	246,428	46,125	99,481	392,034	277,607	1,426,767	187,297
1954.....	18,510	176,121	29,482	120,485	326,087	296,559	1,471,992	184,101
1956.....	11,020	154,550	31,843	125,437	311,829	556,047	1,755,733	151,984
1958.....	99,919	161,693	31,935	124,204	317,832	652,435	1,554,720	178,454
1959.....	54,500	129,419	32,957	127,901	290,277	730,629	1,768,038	235,211
1960.....	39,121	125,188	32,860	129,923	287,971	676,879	1,698,231	220,700
1961.....	61,060	130,025	33,794	134,302	298,121	694,914	1,760,533	283,707
1962.....	64,422	121,930	42,366	141,485	305,780	884,041	1,968,046	375,905
1963.....	38,312	137,654	40,756	154,462	332,872	881,401	2,069,229	425,436
1964.....	30,115	144,645	49,163	168,161	361,969	978,637	2,237,248	642,975
1965.....	72,008	164,498	48,203	196,216	408,917	1,012,093	2,481,658	847,472
1966.....	68,951	154,520	51,680	223,166	429,366	1,122,691	2,760,777	1,625,975
1967.....	34,503	147,824	50,456	232,213	430,493	1,185,628	2,822,357	2,597,949
1968.....	50,674	170,996	49,793	267,949	488,738	1,372,719	3,350,775	3,647,781
1969.....	45,825	182,534	53,318	320,238	556,090	1,370,673	3,573,320	4,700,222
1970.....	55,198	215,160	64,391	325,237	604,790	1,625,552	3,603,442	4,740,373



## 10.—Domestic Exports by Section and by Stage of Fabrication, 1950-70

Sect. VI Special Transactions—Trade				Total Domestic Exports	Recapitulation Stage of Fabrication			Year
Crude Materials	Fabricated Materials	End Products	Total		Crude Materials	Fabricated Materials	End Products	
ALL COUNTRIES								
\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	
48	1,890	50	1,988	3,094,365	928,457	1,731,231	434,679	.....1950
32	4,699	33	4,763	4,269,441	1,463,049	2,219,491	586,901	.....1952
25	2,194	26	2,246	3,849,281	1,151,503	2,182,197	515,580	.....1954
32	3,742	4,730	8,504	4,745,626	1,636,832	2,597,928	510,867	.....1956
1,858	3,076	8,263	13,197	4,791,436	1,766,425	2,390,798	634,213	.....1958
1,981	2,832	6,638	11,450	5,021,672	1,804,986	2,623,807	592,880	.....1959
1,937	3,471	8,552	13,960	5,255,575	1,771,795	2,874,262	609,518	.....1960
4,337	403	7,164	11,903	5,754,986	2,132,131	2,916,436	706,419	.....1961
3,991	340	10,518	14,849	6,178,523	2,241,662	3,058,691	878,169	.....1962
9,771	748	14,196	24,714	6,798,529	2,490,168	3,265,178	1,043,184	.....1963
10,090	716	15,365	26,171	8,094,219	2,959,268	3,714,154	1,420,797	.....1964
9,935	720	12,857	23,512	8,525,078	2,995,287	3,923,499	1,606,292	.....1965
10,068	735	14,514	25,316	10,070,627	3,398,503	4,217,039	2,455,085	.....1966
7,618	843	14,009	22,470	11,120,674	3,226,931	4,417,268	3,476,475	.....1967
9,745	1,449	26,478	37,672	13,269,935	3,539,574	5,027,930	4,702,431	.....1968*
9,490	1,708	24,008	35,205	14,498,224	3,325,036	5,344,862	5,828,325	.....1969*
8,796	1,128	21,256	31,180	16,473,865	4,307,587	6,083,443	6,082,835	.....1970
UNITED KINGDOM								
\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	
—	85	—	85	467,896	232,890	183,966	51,039	.....1950
—	110	—	110	744,461	336,944	395,765	11,751	.....1952
—	63	—	63	651,033	271,679	360,832	18,521	.....1954
—	11	—	11	811,113	362,980	427,841	20,292	.....1956
26	22	27	75	771,576	358,282	363,984	49,310	.....1958
33	44	34	111	785,802	362,488	371,836	51,478	.....1959
42	80	81	203	915,290	374,741	503,412	37,137	.....1960
97	7	135	240	909,344	384,476	479,353	45,516	.....1961
101	7	97	205	909,041	363,690	487,016	58,333	.....1962
256	17	426	699	1,006,838	429,751	509,908	67,179	.....1963
287	28	188	503	1,199,779	443,888	656,784	99,108	.....1964
284	20	183	487	1,174,309	463,959	627,612	82,737	.....1965
281	18	255	554	1,122,574	427,553	601,165	93,856	.....1966
203	13	126	342	1,169,053	446,372	616,131	106,549	.....1967
203	13	188	404	1,209,567	457,444	630,383	121,741	.....1968
176	59	256	491	1,091,236	408,892	569,541	112,803	.....1969*
171	18	267	456	1,465,155	487,592	839,943	137,623	.....1970
UNITED STATES								
\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	
21	471	22	514	2,011,052	491,795	1,338,073	181,185	.....1950
11	472	12	495	2,289,753	529,600	1,473,364	286,790	.....1952
8	469	8	486	2,297,734	491,198	1,501,943	304,594	.....1954
10	649	999	1,657	2,788,270	721,627	1,788,225	278,420	.....1956
1,508	922	2,278	4,708	2,808,067	915,555	1,587,577	304,936	.....1958
1,617	1,094	1,784	4,495	3,083,151	916,165	1,802,089	364,896	.....1959
1,530	1,097	6,643	9,270	2,932,171	842,718	1,732,188	357,266	.....1960
3,519	97	5,225	8,841	3,107,176	889,518	1,794,424	423,234	.....1961
3,155	277	6,812	10,243	3,608,439	1,073,548	2,010,689	524,202	.....1962
7,801	571	10,758	19,130	3,766,380	1,065,168	2,110,556	590,656	.....1963
7,935	550	11,631	20,116	4,271,059	1,161,332	2,286,961	822,767	.....1964
7,802	574	9,931	18,307	4,840,456	1,256,401	2,530,435	1,053,619	.....1965
7,966	594	11,402	19,962	6,027,722	1,354,128	2,813,051	1,860,543	.....1966
6,106	428	11,025	17,559	7,088,490	1,374,061	2,873,241	2,841,187	.....1967
8,394	571	21,849	30,814	8,941,501	1,602,783	3,401,139	3,937,579	.....1968*
8,213	646	18,554	27,413	10,273,542	1,607,244	3,627,284	5,039,014	.....1969*
7,493	509	15,358	23,357	10,652,713	1,903,403	3,668,342	5,080,968	.....1970



## 11.—Imports by Section and by Stage of Fabrication, 1950-70

Year	Sect. I	Sect. II				Sect. III	Sect. IV	Sect. V
	Live Animals	Food, Feed, Beverages and Tobacco				Crude Materials, Inedible	Fabricated Materials, Inedible	End Products, Inedible
		Crude Materials	Fabricated Materials	End Products	Total			
ALL COUNTRIES								
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
1950.....	2,307	200,920	114,570	66,513	382,003	744,771	825,408	1,146,341
1952.....	3,593	215,351	98,051	90,071	403,474	711,674	1,036,545	1,690,063
1954.....	3,800	253,481	99,736	100,289	453,507	600,823	1,012,813	1,818,972
1956.....	5,375	279,318	114,798	129,540	523,656	825,787	1,528,130	2,590,053
1958.....	5,955	280,722	123,986	156,004	560,712	690,140	1,313,053	2,402,125
1959.....	13,175	279,835	129,516	154,512	563,863	728,238	1,392,791	2,731,352
1960.....	7,426	298,651	120,476	155,519	574,647	744,993	1,343,775	2,718,262
1961.....	7,025	327,268	129,473	164,785	621,526	763,536	1,395,779	2,879,561
1962.....	7,561	355,310	143,314	158,139	656,763	826,523	1,487,419	3,152,226
1963.....	9,673	377,592	218,595	174,291	770,477	897,296	1,570,293	3,173,449
1964.....	17,124	395,475	187,316	194,806	777,596	960,662	1,812,988	3,701,202
1965.....	10,801	404,681	148,532	205,677	758,890	1,006,274	2,114,423	4,476,279
1966.....	12,910	422,087	144,959	224,695	791,741	1,023,212	2,233,137	5,483,408
1967.....	21,895	456,910	156,373	248,313	861,596	1,062,268	2,310,208	6,549,967
1968.....	15,554	488,965	159,778	253,889	902,633	1,126,744	2,434,586	7,619,554
1969.....	18,711	552,273	189,348	302,329	1,043,951	1,085,460	2,905,331	8,884,929
1970.....	30,453	567,684	205,676	311,739	1,085,099	1,171,847	2,885,422	8,605,604
UNITED KINGDOM								
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
1950.....	260	1,901	4,834	15,400	22,135	40,607	143,958	191,162
1952.....	248	1,116	4,014	16,511	21,641	24,006	131,690	168,694
1954.....	286	4,780	3,632	17,081	25,493	23,518	141,962	185,898
1956.....	360	2,548	5,260	17,871	25,679	28,750	196,514	219,421
1958.....	470	3,897	6,765	20,074	30,736	24,040	169,043	288,543
1959.....	455	5,630	7,590	20,259	33,479	25,640	177,662	345,261
1960.....	198	4,283	8,338	20,226	32,848	25,236	167,531	357,012
1961.....	142	4,648	8,117	20,975	33,740	28,139	160,503	388,233
1962.....	516	4,138	7,441	20,316	31,894	31,428	176,785	316,929
1963.....	474	5,327	6,667	19,600	31,595	36,401	168,881	284,857
1964.....	432	4,425	3,161	27,230	34,817	37,304	180,331	313,349
1965.....	125	8,189	3,220	28,911	40,320	36,995	189,933	342,638
1966.....	126	8,215	5,493	30,479	44,187	31,622	175,186	380,135
1967.....	133	3,910	5,358	33,604	42,872	29,979	176,538	414,149
1968.....	159	5,454	4,743	35,718	45,915	28,296	183,839	421,821
1969.....	245	6,359	4,619	38,335	49,313	27,755	198,826	501,608
1970.....	510	4,669	5,636	38,662	48,967	24,093	193,216	460,343
UNITED STATES								
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
1950.....	2,020	83,983	18,224	21,895	124,102	457,172	574,219	912,237
1952.....	3,320	103,320	20,873	40,408	164,601	406,743	787,222	1,462,473
1954.....	3,485	118,581	28,343	50,393	197,317	309,877	747,534	1,544,438
1956.....	4,772	144,140	37,136	70,234	251,510	401,715	1,096,282	2,214,930
1958.....	5,190	142,044	34,458	86,233	262,735	291,503	942,761	1,893,424
1959.....	12,300	147,892	41,304	83,876	273,072	300,646	955,179	2,103,953
1960.....	6,838	163,038	41,111	85,307	289,456	325,818	922,257	2,066,485
1961.....	6,493	187,383	45,536	87,214	320,133	335,902	943,086	2,178,165
1962.....	6,689	208,465	52,730	79,858	341,053	360,125	980,713	2,499,281
1963.....	8,888	218,332	53,972	85,653	357,958	383,907	1,036,299	2,534,050
1964.....	16,365	217,033	53,976	85,062	356,071	443,025	1,197,118	2,954,801
1965.....	10,246	223,372	60,732	90,423	374,527	490,848	1,350,165	3,578,300
1966.....	12,241	242,739	64,059	95,301	402,097	506,439	1,481,763	4,451,648
1967.....	20,765	264,843	64,498	99,394	428,735	512,292	1,494,988	5,323,634
1968.....	14,533	281,761	68,746	103,693	454,200	535,827	1,580,384	6,244,221
1969.....	17,270	313,425	74,755	120,116	508,296	451,667	1,911,505	7,206,826
1970.....	27,807	290,610	73,154	124,112	487,875	535,488	1,914,944	6,819,626

## 11.—Imports by Section and by Stage of Fabrication, 1950-70

Sect. VI Special Transactions—Trade				Total Imports	Recapitulation Stage of Fabrication			Year
Crude Materials	Fabricated Materials	End Products	Total		Crude Materials	Fabricated Materials	End Products	
ALL COUNTRIES								
\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	
2,198	8,617	13,528	24,343	3,125,172	950,196	948,595	1,226,382	.....1950
4,988	16,505	49,576	71,069	3,916,418	935,606	1,151,101	1,829,710	.....1952
6,397	19,776	51,313	77,486	3,967,401	864,501	1,132,325	1,970,574	.....1954
7,533	26,668	39,750	73,951	5,546,952	1,118,013	1,669,596	2,759,343	.....1956
8,348	26,864	43,297	78,508	5,050,492	985,165	1,463,903	2,601,426	.....1958
8,196	28,862	42,444	79,501	5,508,921	1,029,444	1,551,169	2,928,308	.....1959
10,322	30,326	52,945	93,593	5,482,695	1,061,392	1,494,577	2,926,726	.....1960
11,430	31,490	58,231	101,152	5,768,578	1,109,259	1,556,742	3,102,577	.....1961
15,727	31,025	80,531	127,284	6,257,776	1,205,121	1,661,758	3,390,896	.....1962
17,301	31,195	88,525	137,021	6,558,209	1,301,862	1,820,083	3,436,265	.....1963
27,222	50,816	140,097	218,135	7,487,707	1,400,483	2,051,120	4,036,105	.....1964
33,118	62,293	171,068	266,479	8,633,148	1,454,874	2,325,248	4,853,025	.....1965
40,836	70,543	210,652	322,031	9,866,439	1,499,045	2,448,639	5,918,755	.....1966
34,909	55,457	178,900	269,266	11,075,198	1,575,982	2,522,038	6,977,180	.....1967
34,342	49,606	174,963	258,911	12,357,982	1,665,605	2,643,970	8,048,406	.....1968
26,328	32,888	132,776	191,991	14,130,372	1,682,772	3,127,567	9,320,034	.....1969
22,623	25,276	113,450	161,349	13,939,775	1,792,607	3,116,374	9,030,793	.....1970
UNITED KINGDOM								
\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	
72	2,055	544	2,671	400,793	42,840	150,847	207,106	.....1950
106	2,723	2,467	5,296	351,576	25,476	138,427	187,672	.....1952
254	2,845	1,973	5,073	382,229	28,838	148,439	204,952	.....1954
203	4,359	1,085	5,647	476,371	31,861	206,133	238,377	.....1956
247	4,146	1,279	5,673	518,505	28,654	179,954	309,896	.....1958
267	4,448	1,362	6,077	588,573	31,992	189,700	366,882	.....1959
295	4,316	1,497	6,107	588,932	30,012	180,185	378,735	.....1960
489	4,506	2,470	7,464	618,221	33,418	173,126	411,678	.....1961
603	1,834	3,073	5,510	563,062	36,685	186,060	340,318	.....1962
582	1,054	2,955	4,591	£26,800	42,784	176,602	307,412	.....1963
978	1,772	5,013	7,762	573,995	43,139	185,264	345,592	.....1964
1,137	2,064	5,846	9,047	619,058	46,446	195,217	377,395	.....1965
1,714	2,964	8,809	13,486	644,741	41,677	183,643	419,423	.....1966
1,210	1,980	6,188	9,378	673,050	35,232	183,876	453,941	.....1967
2,305	2,245	11,505	16,055	696,085	36,214	190,827	469,044	.....1968
1,782	2,410	9,034	13,226	790,973	36,142	205,854	548,977	.....1969
1,407	2,479	7,246	11,133	738,261	30,679	201,331	506,251	.....1970
UNITED STATES								
\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	
2,030	5,270	12,482	19,782	2,089,531	545,205	597,713	946,614	.....1950
4,780	11,858	46,595	63,233	2,887,593	518,163	819,953	1,549,476	.....1952
5,938	14,406	48,283	68,628	2,871,279	437,881	790,283	1,643,114	.....1954
7,133	17,444	37,608	62,185	4,031,395	557,760	1,150,862	2,322,772	.....1956
7,790	16,313	40,433	64,535	3,460,147	446,527	993,532	2,020,090	.....1958
7,676	17,043	39,296	63,915	3,709,065	468,414	1,013,526	2,227,125	.....1959
9,410	18,000	48,361	75,771	3,686,625	505,104	981,368	2,200,153	.....1960
10,178	18,048	51,963	80,189	3,863,968	539,956	1,006,670	2,317,342	.....1961
14,217	24,540	72,922	111,678	4,299,539	589,496	1,057,983	2,652,061	.....1962
15,813	26,606	81,035	123,454	4,444,556	626,940	1,116,877	2,700,738	.....1963
24,764	44,549	127,593	196,905	5,164,285	701,187	1,295,643	3,167,456	.....1964
29,920	56,097	154,728	240,744	6,044,831	754,386	1,466,994	3,823,451	.....1965
35,784	60,966	184,674	281,424	7,135,611	797,203	1,606,788	4,731,623	.....1966
30,688	47,832	157,407	235,927	8,016,341	828,588	1,407,318	5,580,435	.....1967
29,072	41,766	148,369	219,206	9,048,372	861,193	1,690,896	6,496,283	.....1968
20,591	23,371	103,711	147,674	10,243,238	802,953	2,009,631	7,430,653	.....1969
17,283	15,706	86,196	119,186	9,904,919	871,188	2,003,804	7,029,928	.....1970

## PART III.—THE GOVERNMENT AND FOREIGN TRADE

### Section 1.—Federal Foreign Trade Services\*

Canada's economy continues to be vitally dependent on external trade. Trade brings prosperity, and with it the key to developing and expanding social programs, upgrading educational, medical and cultural standards, and narrowing regional disparities. But export growth is not easy to achieve. Competition among industrial nations is intense and will become more so. Although there is no panacea for this problem, a successful export trade can be assured by combining good products, efficient production and aggressive, intelligent marketing with government support.

Federal Government support is provided through the Department of Industry, Trade and Commerce and the Export Development Corporation. The Department assists Canadian industry throughout the complete cycle—from research, design and development through production to marketing of the finished product. The Export Development Corporation, a Crown agency which reports to Parliament through the Minister of Industry, Trade and Commerce, provides insurance, guarantees, loans and other financial facilities to help Canadian exporters.

**Industry, Trade and Commerce Units Involved in Export.**—These units are: the General Relations and Area Relations Offices, the Industry, Trade and Traffic Services, Fairs and Missions, International Defence Programs Branches, and the Trade Commissioner Service. The Publicity Branch and the Office of the Industrial Policy Adviser have both international and domestic responsibilities. The Department's nine line branches, divided into Commodity Sectors, are concerned with promoting growth and efficiency in Canadian manufacturing (see Chap. XV, pp. 779-785), in addition to being active in trade development.

The *Office of General Relations* includes a General Trade Policy, a Commodity Trade Policy and an International Financing Branch. The Office is responsible for advance planning of Canada's external trade policies and general trade policy affecting both primary and secondary manufacturing. It is also responsible for the planning, negotiation and administration of intergovernmental commodity agreements requiring close contact with representatives of Canadian producers, importers and industry associations. The Office participates in the development of policies and procedures for external aid, export credits and other export financing arrangements. It keeps Canadian exporters informed about the range of financing facilities provided by the Canadian Government and those available through international organizations.

The *Office of Area Relations* protects and improves the access of Canadian goods to export markets. It participates in the development and conduct of Canada's external trade relations, and in the formulation of Canadian trade policy. It also ensures that Canada's trading relationships with individual foreign countries and trading blocs are taken into account when domestic economic programs are being worked out. It is concerned with tariffs and other government activities that affect international trade. As a service to Canadian exporters, it supplies details on rates of duty, import restrictions, documentation requirements and other foreign government measures affecting Canadian exports, and advises on problems encountered by exporters in dealing with these matters. Canadian businessmen may also obtain from this Office information on economic and trading conditions in all parts of the world and assistance in planning visits to foreign markets.

The *Industry, Trade and Traffic Services Branch* consists of four Divisions: Industrial Traffic Services, Export and Import Permits, Import Analysis and Industrial and Trade Enquiries. The Industrial Traffic Services Division conducts a continuing study of shipping problems which affect trade, unitized cargo concepts, air and ocean freight rates and services, and air cargo utilization by geographic areas. The main purpose of the studies is to find reliable transportation at competitive rates for external trade. Another objective

\* Prepared in the Canadian Division of the Publicity Branch, Department of Industry, Trade and Commerce, Ottawa.

is to help exporters select the most advantageous routes for moving their goods. The Division participates in international forums dealing with the movement of goods by sea.

The Export and Import Permits Division administers trade controls under the authority of the federal Export and Import Permits Act. The intention of the Act is to ensure, by export control, an adequate supply and distribution in Canada of goods necessary for defence or other needs. The Act also prevents any commodity sale that might be detrimental to the security of Canada. Other functions of this Division are to advise exporters on interpretation and requirements of the Export Control List and Regulations, to study the economic implications of the Export and Import Permits Act and to review control lists and practices.

The Industrial and Trade Enquiries Division provides foreign-based Canadian officers and trade development officers in Canada with appropriate information about Canadian products and companies. It maintains a multi-purpose data bank of Canadian companies and their export products. The Division provides guidance in matters not related to a particular commodity, such as the licensing of manufactures abroad, and assists businessmen unfamiliar with the operations of government by directing them to the appropriate department or agency.

In addition, the Industry, Trade and Traffic Services Branch administers the Department's eight regional offices, which are located at Halifax, Fredericton, Montreal, Toronto, Winnipeg, Regina, Edmonton and Vancouver.

The *Fairs and Missions Branch* co-ordinates, plans, organizes and manages departmental trade promotions designed to stimulate the sale of Canadian products and services abroad. This is achieved by participating in international trade fairs and in-store promotions, and organizing trade missions to and from Canada. Each of these promotional techniques has a specifically defined objective to fit a particular requirement. Fairs abroad are utilized to display Canadian products and cover a broad spectrum from electronics and computer equipment to frozen foods, from ocean technology hardware to clothing, and from wood products to cattle. The Department provides promotional publicity and a highly organized exhibit setting. In-store promotions may cover a single consumer product such as frozen food or a broad range of products to be displayed in either large or small stores.

Missions vary in type depending on the requirement but, in general, out-going missions are used for market investigation and evaluation, resolution of technical market access problems, and economic studies or display of samples; in-coming missions are designed to invite foreign government or company representatives who can influence buying to inspect the industrial capacity and technical capabilities of Canadian firms and to see examples of goods and services with the objective of effecting sales.

The Fairs and Missions program includes planned provision to capitalize on foreign market opportunities which cannot be foreseen in advance.

The *International Defence Programs Branch* promotes defence export trade through marketing programs aimed at the sale of Canadian defence and defence-related, high-technology equipment to friendly countries and the establishment of arrangements with Canada's allies for co-operative defence industrial research, development and production. A major activity is the Canada-United States defence-development and production-sharing program, which entails the joint development and reciprocal procurement of defence items. To ensure maximum Canadian industrial participation in United States defence programs, the Branch has offices in major American cities. Through specialists at Canadian missions abroad—including missions in London, Paris, Bonn and Rome and the Canadian Delegation to NATO—the Branch obtains access for Canadian defence products and technology to foreign markets.

The *Trade Commissioner Service* has 79 Trade Offices in 56 different countries. Its primary role is to promote Canada's export trade and generally to protect its commercial interests abroad. Accordingly, a trade commissioner is called upon to perform a wide variety of tasks: he acts as an export marketing consultant; brings foreign buyers into



contact with Canadian sellers; helps organize trade fairs and trade missions in his territory; recommends modes of distribution and suitable agents; and keeps his headquarters informed of changes in tariffs, exchange controls and other matters that might affect Canada's trade with that country. He initiates programs to develop the markets for those products with the greatest potential in given areas and handles enquiries from Canadian firms. At no time, however, does he handle any money since he is not an agent but rather provides personalized assistance to the Canadian exporter in his territory. In addition, he acts on behalf of the foreign programs of a number of Federal Government departments and undertakes agricultural reporting at specified posts.

For a Canadian firm considering a market in his territory, the trade commissioner can supply information on product usage in that territory, if any, on local production and import data for the product, and on prospective users and/or agents for it.

The scheduled return of trade commissioners for official tours of Canada is an effective means of imparting information to Canadian firms interested in export trade. Trade associations are informed well in advance of these visits so that appointments can be arranged. During such tours, the trade commissioner can discuss export problems with firms interested in exporting to his territory. Businessmen wishing to interview any trade commissioner on tour may arrange to do so by communicating with the Trade Commissioner Service, the Canadian Manufacturers' Association, the local Chamber of Commerce or Board of Trade, or one of the Department's regional offices.

The *Publicity Branch* supports foreign trade promotion by creating international awareness of, and demand for, Canadian products and by endeavouring to attract buyers to Canadian exhibits at out-of-country trade fairs. The program of the International Division is geared to attract buyers to Canadian exhibits at trade fairs. Trade and industrial publicity officers, each a trade promotion specialist responsible for publicizing various commodities, co-ordinate a sales-oriented promotion program on behalf of Canadian manufacturers. Their techniques include providing stories and pictures to foreign news media representatives, placing advertising in foreign publications and sending promotion material, such as booklets and brochures, to trade commissioners for distribution to businessmen in their territory. In addition, a public relations firm is employed in Paris.

Another service is *Canada Courier*, a full-colour tabloid-size newspaper featuring information and photographs about Canadian products and services available for export. Published in five languages, its 28 issues a year reach a total of 1,200,000 potential buyers of Canadian products. Two other publications, *Canada Commerce* and *Commerce Canada*, are produced monthly and contain reports on international market conditions, tariff and trade information, lists of actual export opportunities and domestic business activity. Both the English and French publications are available to Canadian business without charge.

The *Office of the Industrial Policy Adviser* is concerned with policies and programs that have a bearing on industrial development, including the effective adjustment of Canadian industry to changing conditions abroad and at home. The Office develops and maintains an up-to-date reservoir of intelligence on industrial policies in Canada and abroad and participates in the work of interdepartmental and international committees dealing with industrial policy matters.

The *Operational Branches* within the Department are Aerospace, Marine and Rail; Agriculture, Fisheries and Food Products; Apparel and Textiles; Chemicals; Electrical and Electronics; Machinery; Materials; Mechanical Transport; and Wood Products. Each line branch employs a group of commodity specialists who are responsible for assisting Canadian manufacturers to improve the quality and quantity of their production, and for promoting the sale of these products in domestic and world markets.

Each of these industry sector branches has responsibilities in the areas of export trade promotion and domestic industrial development. They lend assistance to Canadian companies already engaged in export activities and at the same time encourage companies with export potential to enter the highly competitive arena of international trade. Their industrial development responsibilities include conducting relative efficiency studies to

determine the competitive capacity of Canadian manufacturers, and assisting companies to participate in the Federal Government's various incentive programs aimed at expanding research, design development and innovation activities in Canadian industry.

**Office of Tourism.**—The Office of Tourism comprises the Canadian Government Travel Bureau and the Travel Industry Branch. The Bureau is charged with promoting travel to Canada from other countries; the Branch is concerned with the study and analysis of the Canadian travel industry, including Federal Government activities in support of tourism.

*Canadian Government Travel Bureau.*—To accomplish its primary function of attracting visitors to Canada, the Bureau undertakes extensive tourist advertising and promotion campaigns abroad, provides tourist publicity material for foreign newspapers, magazines, radio and television and film outlets, and works closely with travel agents and tour operators on three continents. It also maintains an extensive travel counselling service, providing brochures and information to about 2,000,000 potential visitors annually. Offices are operated in New York, Chicago, San Francisco, Minneapolis, Los Angeles, Boston, Philadelphia, Cincinnati, Buffalo, Cleveland, Detroit, Washington, Pittsburgh and Seattle in the United States; the Bureau also has offices in London, Paris, Frankfurt, The Hague, Mexico City, Tokyo and Sydney.

*Travel Industry Branch.*—The Branch is concerned primarily with Canada's travel facilities. Its duties entail close examination of the nature and extent of tourist facilities and services in Canada and appraisal of their adequacy to meet visitor expectations; the study of federal, provincial and private programs and policies related to the growth and development of the travel industry; assessment of industry strengths, weaknesses and problems; and the preparation of advice to the Minister on ways and means to aid the industry. Close liaison is maintained with federal and provincial departments and agencies having activities related to travel and tourism and with major elements of the private sector of the Canadian travel industry.

The Branch also keeps under review the tourism and travel policies and practices of other countries, studies trends and developments in international tourism, and concerns itself with the activities of international organizations and agencies that affect Canada's travel industry.

**Export Development Corporation (EDC).**—This Corporation, under authority of the Export Development Act (RSC 1970, c. E-18), succeeded the 25-year-old Export Credits Insurance Corporation on Oct. 1, 1969. It is the purpose of EDC to facilitate the development of Canada's export trade by providing insurance, guarantees, loan and other financial facilities that enable Canadian firms to meet international credit competition. It reports to Parliament through the Minister of Industry, Trade and Commerce, and its affairs are administered by a 12-man board of directors. The chairman and six of the directors are appointed from among persons employed in the Public Service of Canada and the remaining five from private business.

EDC functions are: to insure Canadian exporters against non-payment by foreign buyers due to credit or political risks over which neither buyer nor seller has any control; to issue guarantees to persons in respect of the financing of exports; to make loans to foreign buyers or to issue guarantees in respect of the purchase of capital goods or major services from Canada involving extended credit terms; and to insure Canadian investments abroad against non-commercial risks such as war or revolution, expropriation or confiscation, or the inability to repatriate capital or earnings.

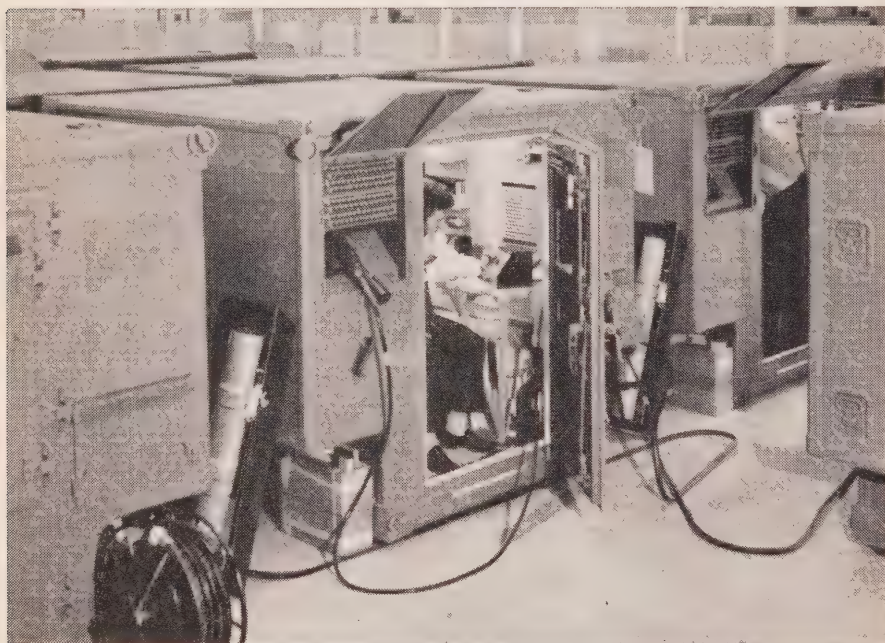
Export credit insurance is available to all persons or corporations carrying on business in Canada to cover export sales made on customary credit terms. It provides protection against risks involved in the export, manufacture, treatment or servicing of goods for, or the leasing of goods to, a foreign customer; the sale or licensing of any rights in a patent,

trademark or copyright to a foreign customer; or the rendering to a foreign customer of any managerial, construction, technological, marketing or other such service.

The main risks insured include insolvency or protracted default on the part of the buyer; exchange restrictions in the buyer's country preventing the transfer of funds to Canada; cancellation of an import or an export licence or the imposition of restrictions on the import or export of goods not previously subject to restrictions; the occurrence of war between the buyer's country and Canada, or of war, revolution, etc., in the buyer's country. Comprehensive policies are available to cover general commodities sold on short credit terms up to a maximum of about 180 days; specific policies are issued to cover capital goods sold on medium credit terms up to a maximum of five years. Specific policies are also issued to cover services that are normally sold on a monthly or bi-monthly billing basis.

General commodities policies cover a policyholder's export sales to all countries for a period of one year and are renewable. Two types are available: the contracts policy, which insures an exporter against loss from the time he books an order until payment is received; and the shipments policy, obtainable at lower rates of premium and covering the exporter from the time of shipment until payment is received.

Capital goods policies cover specific transactions involving such goods as plant equipment, heavy machinery, ships, aircraft, etc. Specific policies are tailored to each transaction, but the general terms and conditions are the same as those applicable to policies for general commodities. Specific policies may also be issued to cover engineering, construction, technical or similar service contracts entered into between Canadian firms and persons



Canadian radio relay communications equipment to the value of \$23,000,000 being manufactured in Montreal for export to Iran. The contract was financed by the Export Development Corporation as part of a \$100,000,000 line of credit agreement signed by the Imperial Government of Iran and the Corporation in 1971.



in foreign countries who have agreed to purchase such services. EDC may also extend unconditional guarantees to any person who agrees to provide non-recourse financing in respect of an insured export sale of capital equipment on medium-term credit.

EDC insures exporters on a co-insurance basis, the exporter retaining a small percentage of the risk involved. The same principle operates in the distribution of recoveries obtained after the payment of a claim.

EDC is authorized to make loans to foreign buyers of capital equipment or services from Canada for which commercial financing is not available. In such transactions, the Canadian exporter applies for the loan on behalf of the buyer. The loan must normally be \$1,000,000 or more, and the credit terms required over five years. Guarantees may be given in respect of financing provided to a foreign importer of Canadian capital goods and services. EDC may also guarantee and, under certain circumstances, finance a portion of local costs involved in capital projects for which it has provided a loan or a guarantee.

EDC may insure Canadians investing in foreign countries against loss of the investment due to confiscation, inconvertibility or war. New investments of a lasting nature in developing countries qualify for such insurance and coverage is restricted to a maximum of 15 years. Investments may vary from that of the Canadian investor acquiring the right to share in the assets of a business carried on in a foreign country to that of the investor lending money to a person in a foreign country for the purpose of establishing a business in that country.

## Section 2.—The Development of Tariffs

Limitations of space in the Year Book have made it necessary, in regard to tariffs, to adopt the policy of confining any detail regarding commodities and countries to tariff relationships in force at present and to summarize as much as possible historical data and details of preceding tariffs.

### Subsection 1.—The Canadian Tariff Structure\*

The Canadian Tariff consists, in the main, of three sets of tariff rates—British Preferential, Most-Favoured-Nation, and General.

*British Preferential Tariff* rates are, with some exceptions, the lowest rates. They are applied to imported commodities from British countries, with the exception of Hong Kong, when conveyed without trans-shipment from a port of any British country enjoying the benefits of the British Preferential Tariff into a port of Canada. Some Commonwealth countries have trade agreements with Canada that provide for rates of duty, on certain specified goods, lower than the British Preferential rates.

*Most-Favoured-Nation* rates are usually higher than the British Preferential rates and lower than the General Tariff rates. They are applied to commodities imported from countries with which Canada has trade agreements. These rates would apply to British countries when they are lower than the British Preferential Tariff rates. The most important trade agreement concerning the effective rates applied to goods imported from countries entitled to Most-Favoured-Nation rates is the General Agreement on Tariffs and Trade (GATT).

*General Tariff* rates are applied to goods imported from the few countries with which Canada has not made trade agreements.

There are numerous goods which are duty-free under the British Preferential Tariff, or under both the British Preferential and the Most-Favoured-Nation Tariffs, or under all Tariffs.

\* Information relating to rates of duty, value for duty and anti-dumping duty is available from the Department of National Revenue, Customs and Excise, which administers the Customs Act, the Customs Tariff and the Anti-dumping Act.



*Valuation.*—In general, the Customs Act provides that the value for duty of imported goods shall be the fair market value of like goods as established in the home market of the exporter at the time when and place from which the goods are shipped directly to Canada when sold “(a) to purchasers located at that place with whom the vendor deals at arm’s length and who are at the same or substantially the same trade level as the importer, and (b) in the same or substantially the same quantities for home consumption in the ordinary course of trade under competitive conditions”. In cases where like goods are not sold for home consumption but similar goods are sold, the value for duty shall be the cost of production of the goods imported plus an amount for gross profit equal in percentage to that earned on the sale of similar goods in the country of export. The value for duty ordinarily may not be less than the amount for which the goods were sold to the purchaser in Canada, exclusive of all charges thereon after their shipment from the country of export. Internal taxes in the country of export (when not incurred on exported goods), the cost of shipping goods to Canada and similar charges do not normally form part of the value for duty. There are, of course, further provisions for determining value for duty under the Act.

*Anti-dumping Act.*—Canada’s Anti-dumping Act (RSC 1970, c. A-15) provides, in brief, that where goods are dumped, i.e., the export price is less than the normal value, and such dumping has caused, is causing, or is likely to cause material injury to the production of like goods in Canada, or has materially retarded or is materially retarding the establishment of the production in Canada of like goods as determined by the Anti-dumping Tribunal, there shall be levied, collected and paid an anti-dumping duty. This anti-dumping duty is in an amount equal to the margin of dumping of the entered goods.

*Drawback.*—There are provisions in the Customs and Excise Tax Acts for the repayment of a portion of the duty, sales and/or excise taxes paid on imported goods used in the manufacture of products later exported. The purpose of these drawbacks (as these repayments are called) is to assist Canadian manufacturers to compete in foreign markets with foreign producers of similar goods. A second class of drawback, known as “home consumption” drawbacks, is provided for under the Customs Act and the Customs Tariff and applies to imported materials and/or parts used in the production of specified goods to be consumed in Canada.

**The Tariff Board.**—The organization and functions of the Tariff Board are described at p. 151 of this volume.

### **Subsection 2.—Tariff and Trade Arrangements with Other Countries as at Oct. 1, 1971**

Canada’s tariff arrangements with other countries fall into three main categories: trade agreements with a number of Commonwealth countries; the General Agreement on Tariffs and Trade (GATT); and other agreements and arrangements.

The Commonwealth countries with which Canada has trade agreements providing for exchange of preferential rates are: Australia, the Bahamas, Barbados, Bermuda, Guyana, British Honduras, Jamaica, the Leeward and the Windward Islands, Trinidad and Tobago, New Zealand, Britain and its dependent territories, and Malawi. Canada also exchanges preferences with Ceylon (now Republic of Sri Lanka), Cyprus, Fiji, Gambia, Malaysia, Malta, Mauritius, Singapore, Swaziland and Western Samoa and accords preferences to India, Pakistan, Ghana, Nigeria, Botswana, Lesotho, Kenya, Tanzania, Uganda, Zambia and Sierra Leone. Many of these countries are also members of the GATT. In addition, Canada has trade agreements with Ireland and South Africa under which preferences are exchanged.

Canada signed the Protocol of Provisional Application of the General Agreement on Tariffs and Trade on Oct. 30, 1947, and brought the General Agreement into force on Jan. 1, 1948. The Agreement provides for scheduled tariff concessions and the exchange of most-favoured-nation treatment among the contracting parties, and lays down rules and regulations to govern the conduct of international trade.

As of Oct. 1, 1971, there were 79 full members and one provisional member, Tunisia, in the GATT. These countries and the effective dates of their accession are indicated in the following list. The GATT is applied on a *de facto* basis to a number of newly independent states—Algeria, Botswana, Lesotho, Maldives, Cambodia (now Khmer Republic), Mali, Singapore, Swaziland and Zambia—pending decisions as to their future commercial policies.

Trade relations between Canada and a number of other countries are governed by trade agreements of various kinds, by exchange of most-favoured-nation treatment under Orders in Council, by continuation to newly independent states of the same treatment originally negotiated with the countries previously responsible for their commercial relations, and by even less formal arrangements.

### Tariff and Trade Arrangements with Commonwealth Countries as at Oct. 1, 1971

Country	Agreement	Tariff Treatment
AUSTRALIA.....	Trade Agreement in force June 30, 1960. GATT effective Jan. 1, 1948.	Bindings of rates of duty and margins of preference on specified products and exchange of preferential tariff rates on most other products.
BARBADOS.....	Relations are based on Canada-West Indies Trade Agreement and protocol thereto (see Commonwealth Caribbean). GATT effective Nov. 30, 1966.	Exchange of preferential tariff treatment.
BOTSWANA.....	Relations continue to be governed by Trade Agreement of 1937 with Britain. GATT <i>de facto</i> application.	Canada accords British preferential tariff treatment.
BRITAIN.....	Trade Agreement effective Sept. 1, 1937; modified by exchanges of letters Nov. 16, 1938 and Oct. 30, 1947. GATT effective Jan. 1, 1948.	Various concessions are granted by each country including exchange of preferential tariff treatment. The Agreement (as modified) includes provisions relating to the Colonies, Dependencies and Trusteeships.
CEYLON (NOW REPUBLIC OF SRI LANKA).	Relations continue to be governed by Trade Agreement of 1937 with Britain. GATT effective July 29, 1948.	Exchange of British preferential tariff treatment.
COMMONWEALTH CARIBBEAN (BAHAMAS, BERMUDA, BRITISH HONDURAS, LEEWARD ISLANDS, WINDWARD ISLANDS).	Canada-British West Indies Trade Agreement, in force Apr. 30, 1927; Canadian notice of termination of Nov. 23, 1938, was replaced by notice of Dec. 27, 1939, which continued the Agreement. Protocol signed July 8, 1966, provides <i>inter alia</i> for continuation of 1925 Agreement. Bermuda, British Honduras, the Leeward Islands and the Windward Islands participate in GATT	Exchange of preferential tariff treatment.
CYPRUS.....	GATT effective Aug. 16, 1960.	Exchange of British preferential tariff treatment.
FIJI.....	Relations continue to be governed by Canada-United Kingdom Trade Agreement of 1937.	Exchange of British preferential tariff treatment.
GAMBIA.....	GATT effective Feb. 18, 1965.	Exchange of British preferential tariff treatment.
GHANA.....	GATT effective Oct. 18, 1957.	Canada accords British preferential tariff treatment to Ghana (except on cocoa beans). Ghana extends most-favoured-nation treatment to Canada.
GUYANA.....	Relations are based on the Canada-West Indies Trade Agreement and protocol thereto (see Commonwealth Caribbean). GATT effective July 5, 1966.	Exchange of preferential tariff treatment.

## Tariff and Trade Arrangements with Commonwealth Countries as at Oct. 1, 1971—continued

Country	Agreement	Tariff Treatment
INDIA.....	Since 1897 Canada has unilaterally accorded British preferential treatment without contractual obligation. GATT effective July 8, 1948.	Canada accords British preferential tariff treatment to India. India extends most-favoured-nation treatment to Canada.
JAMAICA.....	Relations are based on Canada-West Indies Trade Agreement and protocol thereto (see Commonwealth Caribbean). GATT effective Aug. 6, 1962.	Exchange of preferential tariff treatment.
KENYA.....	Relations continue to be governed by Trade Agreement of 1937 with Britain. GATT effective Dec. 12, 1963.	Canada accords British preferential tariff treatment to Kenya. Kenya extends most-favoured-nation treatment to Canada.
LESOTHO.....	Relations continue to be governed by Trade Agreement of 1937 with Britain. GATT <i>de facto</i> application.	Canada accords British preferential tariff treatment to Lesotho.
MALAWI.....	Malawi and Canada observe the terms of the 1958 Trade Agreement between Canada and the former Federation of Rhodesia and Nyasaland. GATT effective July 6, 1964.	Exchange of preferential tariff treatment.
MALAYSIA.....	Relations continue to be governed by Trade Agreement of 1937 with Britain. GATT effective Sept. 16, 1963.	Exchange of British preferential tariff treatment.
MALDIVES.....	GATT <i>de facto</i> application.	Canada accords British preferential tariff treatment to the Maldivian Islands.
MALTA.....	Relations continue to be governed by Trade Agreement of 1937 with Britain. GATT effective Sept. 16, 1964.	Exchange of British preferential tariff treatment.
MAURITIUS.....	GATT effective Mar. 12, 1968.	Exchange of British preferential tariff treatment.
NEW ZEALAND.....	Trade Agreement in force May 24, 1932. GATT effective July 26, 1948.	Bindings of rates of duty on specified products and the exchange of preferential tariff rates on all other products.
NIGERIA.....	Relations continue to be governed by Trade Agreement of 1937 with Britain. GATT effective Oct. 1, 1960.	Canada accords British preferential treatment to Nigeria. Nigeria extends most-favoured-nation treatment to Canada.
PAKISTAN.....	Canada unilaterally accords British preferential treatment without contractual obligation. GATT effective July 30, 1948.	Canada accords British preferential tariff treatment to Pakistan. Pakistan accords most-favoured-nation tariff treatment to Canada.
RHODESIA.....	Canada does not recognize the present Government of Rhodesia.	Trade embargo exists between Canada and Rhodesia with certain humanitarian exceptions.
SIERRA LEONE.....	Relations continue to be governed by Trade Agreement of 1937 with Britain. GATT effective Apr. 27, 1961.	Canada accords British preferential tariff treatment to Sierra Leone. Sierra Leone extends most-favoured-nation tariff treatment to Canada.
SINGAPORE.....	GATT <i>de facto</i> application.	Exchange of British preferential tariff treatment.
SWAZILAND.....	GATT <i>de facto</i> application.	Exchange of British preferential tariff treatment.
TANZANIA.....	GATT effective for Tanganyika Dec. 9, 1961 and extended to Zanzibar upon formation of United Republic, Apr. 23, 1964.	Canada accords British preferential tariff treatment to Tanzania. Tanzania extends most-favoured-nation treatment to Canada.

**Tariff and Trade Arrangements with Commonwealth Countries as at Oct. 1, 1971—concluded**

Country	Agreement	Tariff Treatment
TRINIDAD AND TOBAGO.....	Relations are based on Canada-West Indies Trade Agreement and protocol thereto (see Commonwealth Caribbean). GATT effective Aug. 31, 1962.	Exchange of preferential tariff treatment.
UGANDA.....	GATT effective Oct. 9, 1962.	Canada accords British preferential tariff treatment to Uganda. Uganda extends most-favoured-nation tariff treatment to Canada.
WESTERN SAMOA.....	Relations continue to be governed by Trade Agreement of 1932 with New Zealand.	Exchange of specified preferences on scheduled goods and exchange of British preferential tariff rates on items not scheduled.
ZAMBIA.....	GATT <i>de facto</i> application.	Canada accords British preferential tariff treatment to Zambia. Zambia extends most-favoured-nation treatment to Canada.

**Tariff and Trade Arrangements with Non-Commonwealth Countries as at Oct. 1, 1971**

Country	Agreement	Tariff Treatment
ALGERIA.....	Franco-Canadian Trade Agreement of 1933 applied to Algeria. Algeria maintains a <i>de facto</i> application of GATT.	Since the creation of Algeria as an independent state in 1962, Canada has continued to grant most-favoured-nation treatment.
ARGENTINA.....	Trade Agreement in force Nov. 15, 1941. GATT effective Oct. 11, 1967.	Exchange of most-favoured-nation treatment.
AUSTRIA.....	GATT effective Oct. 19, 1951.	Exchange of most-favoured-nation treatment.
BAHRAIN.....	GATT effective Aug. 15, 1971.	Exchange of most-favoured-nation treatment.
BELGIUM-LUXEMBOURG.....	Convention of Commerce with Belgium-Luxembourg Economic Union (including Belgian colonies) entered into effect Oct. 22, 1924. GATT effective Jan. 1, 1948.	Exchange of most-favoured-nation treatment.
BENELUX (BELGIUM-NETHERLANDS-LUXEMBOURG CUSTOMS UNION).	(See Belgium-Luxembourg and Netherlands.)	
BOLIVIA.....	Order in Council of July 20, 1935, accepted Article 15 of U.K.-Bolivia Treaty of Commerce.	Exchange of most-favoured-nation treatment.
BRAZIL.....	Trade Agreement in force Apr. 16, 1943. GATT effective July 31, 1948.	Exchange of most-favoured-nation treatment.
BULGARIA.....	Trade Agreement signed Oct. 8, 1963 renewed for further three years from Oct. 8, 1966 and extended on a <i>de facto</i> basis.	Exchange of most-favoured-nation treatment and undertaking by Bulgaria to purchase a minimum of 200,000 metric tons of wheat or equivalent in flour during the three-year validity of the Agreement.
BURMA.....	GATT effective July 29, 1948.	Exchange of most-favoured-nation treatment.



**Tariff and Trade Arrangements with Non-Commonwealth Countries  
as at Oct. 1, 1971—continued**

Country	Agreement	Tariff Treatment
BURUNDI.....	GATT effective Nov. 25, 1965.	Exchange of most-favoured-nation treatment.
CAMBODIA (now KHMER REPUBLIC).	Franco-Canadian Trade Agreement of 1933 applied to Cambodia. Became a <i>de facto</i> member of GATT in 1968.	Since the creation of Cambodia as an independent state in 1955, Canada has continued to grant most-favoured-nation treatment.
CAMEROON.....	Franco-Canadian Trade Agreement of 1933 applied to Cameroon. GATT effective Nov. 28, 1960.	Exchange of most-favoured-nation treatment.
CENTRAL AFRICAN REPUBLIC....	Franco-Canadian Trade Agreement of 1933 applied to Central African Republic. GATT effective Aug. 14, 1960.	Exchange of most-favoured-nation treatment.
CHAD .....	Franco-Canadian Trade Agreement of 1933 applied to Chad. GATT effective Aug. 11, 1960.	Exchange of most-favoured-nation treatment.
CHILE .....	Trade Agreement in force Oct. 29, 1943. GATT effective Mar. 16, 1948.	Exchange of most-favoured-nation treatment.
CHINA.....	<i>Modus vivendi</i> in force Sept. 28, 1946.	Exchange of most-favoured-nation treatment.
COLOMBIA.....	Treaty of Commerce with Britain of Feb. 16, 1866, applies to Canada. Modified by protocol of Aug. 20, 1912, and exchange of notes Dec. 30, 1938.	Exchange of most-favoured-nation treatment.
CONGO (BRAZZAVILLE) .....	Franco-Canadian Trade Agreement of 1933 applies to Congo (Brazzaville). GATT effective Aug. 15, 1960.	Exchange of most-favoured-nation treatment.
CONGO (KINSHASA).....	Belgo-Canadian Convention of Commerce of 1924 applied to Congo (Kinshasa). GATT effective Sept. 11, 1971.	Exchange of most-favoured-nation treatment.
COSTA RICA.....	<i>Modus vivendi</i> in force Jan. 26, 1951.	Exchange of most-favoured-nation treatment.
CUBA.....	GATT effective Jan. 1, 1948.	Exchange of most-favoured-nation treatment.
CZECHOSLOVAKIA.....	Convention of Commerce in force Nov. 14, 1928. GATT effective May 21, 1948.	Exchange of most-favoured-nation treatment.
DAHOMEY.....	Franco-Canadian Trade Agreement of 1933 applied to Dahomey. GATT effective Aug. 1, 1960.	Exchange of most-favoured-nation treatment.
DENMARK (INCLUDING GREENLAND).	Treaties of Peace and Commerce with Britain of Feb. 13, 1660 and July 11, 1670, apply to Canada. GATT effective May 28, 1950.	Exchange of most-favoured-nation treatment.
DOMINICAN REPUBLIC.....	Trade Agreement in force Jan. 22, 1941. GATT effective May 19, 1950.	Exchange of most-favoured-nation treatment, including scheduled concessions.
ECUADOR.....	<i>Modus vivendi</i> in force Dec. 1, 1950.	Exchange of most-favoured-nation treatment.
EL SALVADOR.....	Exchange of notes in force Nov. 17, 1937.	Exchange of most-favoured-nation treatment.
EQUATORIAL GUINEA.....	Since Aug. 1, 1928, U.K.-Spain Treaty of Commerce of 1922, Canada-Spain Trade Agreement signed May 25, 1954. GATT <i>de facto</i> application.	Since the creation of Equatorial Guinea as an independent state in 1968, Canada has continued to grant most-favoured-nation treatment.

**Tariff and Trade Arrangements with Non-Commonwealth Countries  
as at Oct. 1, 1971—continued**

Country	Agreement	Tariff Treatment
ETHIOPIA.....	Exchange of notes effective June 3, 1955.	Exchange of most-favoured-nation treatment.
FINLAND.....	Exchange of notes effective Nov. 17, 1948. GATT effective May 25, 1950.	Exchange of most-favoured-nation treatment.
FRANCE AND FRENCH OVERSEAS TERRITORIES.	Trade Agreement in force June 10, 1933. Exchange of notes of Sept. 29, 1934, and additional protocol of Feb. 26, 1935. GATT effective Jan. 1, 1948.	Exchange of most-favoured-nation treatment, including scheduled concessions.
GABON.....	Franco-Canadian Trade Agreement of 1933 applied to Gabon. GATT effective Aug. 17, 1960.	Exchange of most-favoured-nation treatment.
GERMANY, FEDERAL REPUBLIC OF.	GATT effective Oct. 1, 1951.	Exchange of most-favoured-nation treatment.
GREECE.....	<i>Modus vivendi</i> in force July 24-28, 1947. GATT effective Mar. 1, 1951.	Exchange of most-favoured-nation treatment.
GREENLAND.....	(See Denmark.)	
GUATEMALA.....	Trade Agreement in force Jan. 14, 1939.	Exchange of most-favoured-nation treatment.
GUINEA.....	Franco-Canadian Trade Agreement of 1933 applied to Guinea.	Since the creation of Guinea as an independent state in 1958, Canada has continued to grant most-favoured-nation treatment.
HAITI.....	Trade Agreement in force Jan. 10, 1939. GATT effective Jan. 1, 1950.	Exchange of most-favoured-nation treatment.
HONDURAS.....	Exchange of notes effective July 18, 1956. Ratified in Honduras Sept. 5, 1956.	Exchange of most-favoured-nation treatment.
HUNGARY.....	Trade Agreement, June 11, 1964, renewed for three years from Aug. 9, 1968 and extended to Dec. 31, 1971.	Exchange of most-favoured-nation treatment and minimum purchase undertakings by Hungarian foreign trade enterprises.
ICELAND.....	GATT effective Apr. 21, 1968.	Exchange of most-favoured-nation treatment.
INDONESIA.....	GATT effective Mar. 1, 1948.	Exchange of most-favoured-nation treatment.
IRAN.....	Iran accorded most-favoured-nation treatment by Order in Council from Sept. 5, 1956.	Canada grants most-favoured-nation tariff rates as long as Iran accords reciprocal treatment.
IRAQ.....	Special arrangement by Order in Council effective Sept. 15, 1951.	Exchange of most-favoured-nation treatment.
IRELAND.....	Trade Agreement in force Jan. 2, 1933. Modified by exchange of letters on Dec. 21, 1967. GATT effective Dec. 22, 1967	Bindings to Canada of rates of duty on specified products, and exchange of preferential treatment.
ISRAEL.....	GATT effective July 5, 1962.	Exchange of most-favoured-nation treatment.
ITALY.....	<i>Modus vivendi</i> by exchange of notes effective Apr. 28, 1948. GATT effective Jan. 1, 1950.	Exchange of most-favoured-nation treatment.
IVORY COAST.....	Franco-Canadian Trade Agreement of 1933 applied to Ivory Coast. GATT effective Aug. 7, 1960.	Exchange of most-favoured-nation treatment.

**Tariff and Trade Arrangements with Non-Commonwealth Countries  
as at Oct. 1, 1971—continued**

Country	Agreement	Tariff Treatment
JAPAN.....	Agreement on Commerce effective June 7, 1954. GATT effective Sept. 10, 1955.	Exchange of most-favoured-nation treatment.
KOREA, REPUBLIC OF.....	Trade Agreement in force Dec. 20, 1966. GATT effective Apr. 14, 1967.	Exchange of most-favoured-nation treatment.
KUWAIT.....	GATT effective June 18, 1961.	Exchange of most-favoured-nation treatment.
LAOS.....	Franco-Canadian Trade Agreement of 1933 applied to Laos.	Since the creation of Laos as an independent state in 1955, Canada has continued to grant most-favoured-nation treatment.
LEBANON.....	Special arrangement by Order in Council of Nov. 19, 1946.	Canada grants most-favoured-nation tariff rates as long as Lebanon accords reciprocal treatment.
LIBERIA.....	Special arrangement by Order in Council effective Mar. 1, 1955.	Canada grants most-favoured-nation treatment.
LIECHTENSTEIN.....	(See Switzerland.)	
LUXEMBOURG.....	(See Belgium-Luxembourg.)	
MALAGASY REPUBLIC.....	Franco-Canadian Trade Agreement of 1933 applied to Malagasy Republic. GATT effective June 25, 1960.	Exchange of most-favoured-nation treatment.
MALI.....	Franco-Canadian Trade Agreement of 1933 applied to Mali. Mali maintains a <i>de facto</i> application of GATT.	Since the creation of Mali as an independent state in 1960, Canada has continued to grant most-favoured-nation treatment.
MAURITANIA.....	Franco-Canadian Trade Agreement of 1933 applied to Mauritania. GATT effective Nov. 28, 1960.	Exchange of most-favoured-nation treatment.
MEXICO.....	Trade Agreement in force June 5, 1947.	Exchange of most-favoured-nation treatment.
MOROCCO.....	Various agreements relating to former French, Spanish and International Zones of Morocco.	Since the creation of Morocco as an independent state in 1956, Canada has continued to grant most-favoured-nation treatment.
NETHERLANDS.....	Convention of Commerce of July 11, 1924 includes Netherlands Antilles and Surinam. GATT effective Jan. 1, 1948.	Exchange of most-favoured-nation treatment.
NICARAGUA.....	Trade Agreement in force Dec. 19, 1946. GATT effective May 28, 1950.	Exchange of most-favoured-nation treatment.
NIGER.....	Franco-Canadian Trade Agreement of 1933 applied to Niger. GATT effective Aug. 3, 1960.	Exchange of most-favoured-nation treatment.
NORWAY.....	Convention of Commerce and Navigation with U.K. of Mar. 18, 1826, applied to Canada. GATT effective July 10, 1948.	Exchange of most-favoured-nation treatment.
PANAMA.....	Order in Council of July 20, 1935 accepted Article 12 of U.K.-Panama Treaty of Commerce of Sept. 25, 1928. Treaty terminated in 1942.	Exchange of most-favoured-nation treatment without contractual obligation.
PARAGUAY.....	Exchange of notes in force June 21, 1940.	Exchange of most-favoured-nation treatment.

**Tariff and Trade Arrangements with Non-Commonwealth Countries  
as at Oct. 1, 1971—continued**

Country	Agreement	Tariff Treatment
PERU.....	GATT effective Oct. 8, 1951.	Exchange of most-favoured-nation treatment.
PHILIPPINES.....	No agreement.	Exchange of most-favoured-nation treatment without contractual obligation.
POLAND.....	Convention of Commerce in force Aug. 15, 1936. GATT effective Oct. 18, 1967.	Exchange of most-favoured-nation treatment.
PORTUGAL, PORTUGUESE ADJACENT ISLANDS AND PORTUGUESE OVERSEAS PROVINCES.	Trade Agreement in force Apr. 29, 1955. GATT effective May 6, 1962.	Exchange of most-favoured-nation treatment.
ROMANIA.....	Trade Agreement effective for three years from Mar. 22, 1971.	Exchange of most-favoured-nation treatment and Romanian endeavours to provide improved access for Canadian exports.
RWANDA.....	GATT effective Jan. 1, 1966.	Canada grants most-favoured-nation treatment.
SENEGAL.....	Franco-Canadian Trade Agreement of 1933 applied to Senegal. GATT effective June 20, 1960.	Exchange of most-favoured-nation treatment.
SOUTH AFRICA.....	Trade Agreement in force Oct. 13, 1932. Exchange of notes Aug. 2-31, 1935, effective retroactively from July 1, 1935. GATT effective June 14, 1948.	Exchange of British preferential rates on scheduled items. Exchange of most-favoured-nation treatment.
SPAIN AND SPANISH POSSESSIONS.	Since Aug. 1, 1928, Canada has adhered to U.K.-Spain Treaty of Commerce of Oct. 31, 1922. Trade Agreement signed May 26, 1954. GATT effective Aug. 29, 1963.	Exchange of most-favoured-nation treatment.
SWEDEN.....	U.K.-Sweden Convention of Commerce and Navigation of Mar. 18, 1826 applies to Canada. GATT effective May 1, 1950.	Exchange of most-favoured-nation treatment.
SWITZERLAND.....	U.K.-Switzerland Treaty of Friendship, Commerce and Reciprocal Establishment of Sept. 6, 1855 applies to Canada. By exchange of notes Liechtenstein included under terms of this Agreement, effective July 14, 1947. GATT effective Aug. 1, 1966.	Exchange of most-favoured-nation treatment.
SYRIAN ARAB REPUBLIC.....	Special Arrangement by Order in Council of Nov. 19, 1946.	Canada grants most-favoured-nation treatment tariff rates as long as Syria accords reciprocal treatment.
THAILAND.....	<i>Modus vivendi</i> effective Apr. 22, 1969.	Exchange of most-favoured-nation treatment.
TOGO.....	Franco-Canadian Trade Agreement of 1933 applied to Togo. GATT effective Mar. 20, 1964.	Exchange of most-favoured-nation treatment.
TUNISIA.....	Tunisia acceded to GATT provisionally in 1959.	Since the creation of Tunisia as an independent state in 1956, Canada has continued to grant most-favoured-nation treatment.
TURKEY.....	Exchange of notes in effect Mar. 15, 1948. GATT effective Oct. 17, 1951.	Exchange of most-favoured-nation treatment.
UNION OF SOVIET SOCIALIST REPUBLICS.	Trade Agreement of 1956 extended to Apr. 18, 1972.	Exchange of most-favoured-nation treatment.



**Tariff and Trade Arrangements with Non-Commonwealth Countries  
as at Oct. 1, 1971—concluded**

Country	Agreement	Tariff Treatment
UNITED ARAB REPUBLIC.....	Exchange of notes in force Dec. 3, 1952. GATT effective May 9, 1970.	Exchange of most-favoured-nation treatment.
UNITED STATES.....	Trade Agreement of Nov. 17, 1938 suspended as long as both countries continue to be contracting parties to GATT. GATT effective Jan. 1, 1948.	Exchange of most-favoured-nation treatment.
UPPER VOLTA.....	Franco-Canadian Trade Agreement of 1933 applied to Upper Volta. GATT effective Aug. 5, 1960.	Exchange of most-favoured-nation treatment.
URUGUAY.....	Trade Agreement in force May 15, 1940. Additional protocol signed Oct. 19, 1953. GATT effective Dec. 16, 1953.	Exchange of most-favoured-nation treatment.
VENEZUELA.....	<i>Modus vivendi</i> in force Oct. 11, 1950.	Exchange of most-favoured-nation treatment. Made for one year subject to annual renewal.
VIET-NAM.....	Franco-Canadian Trade Agreement of 1933 applied to Viet-Nam.	Since 1955, Canada has continued to accord most-favoured-nation rates.
YUGOSLAVIA.....	Trade Agreements Act of June 11, 1928, accepted Article 30 of U.K.-Serb-Croat-Slovene Treaty of Commerce and Navigation in force Aug. 9, 1928. GATT effective Aug. 25, 1966.	Exchange of most-favoured-nation treatment.

#### PART IV.—TRAVEL BETWEEN CANADA AND OTHER COUNTRIES\*

The dimensions of international travel between Canada and other countries continue to expand. In 1970, international travel involved 74,444,000 border crossings and an estimated expenditure of \$2,695,000,000. As would be expected, most of this travel traffic was between Canada and the United States. In that year, 37,153,000 United States visitors entered Canada, 3.9 p.c. more than in 1969, and Canadian travellers to the United States numbered 35,656,000, also slightly more than in the preceding year. The remainder of the border crossings consisted of travel between Canada and overseas countries, which involved 535,532 visitors to Canada (direct and by way of the United States) and 1,099,429 Canadian travellers returning to Canada (direct and by way of the United States); the increase over 1969 in visitors to Canada from overseas was 15.6 p.c. and in Canadians returning from visits overseas 29.1 p.c. Although the increase of travel between Canada and the United States is large in absolute terms, travel between Canada and overseas countries has been expanding at a proportionately greater rate.

The effect of changes in the number of border crossings and expenditure patterns is of considerable importance to persons in the travel industry, as well as to those concerned with Canada's balance of payments. In 1970, expenditures of all visitors to Canada were estimated at \$1,233,900,000, an amount 14.9 p.c. higher than in 1969. Expenditures by Canadian travellers outside of Canada went up 13.0 p.c. to reach an estimated \$1,459,900,000. These changes in expenditures resulted in a travel account deficit of \$226,000,000 in 1970

\*Prepared by the International Travel Statistics Section, Economic Accounts Branch, Statistics Canada.



*A rustic bridge over a swamp on the Rideau Hiking Trail which cuts through the woodlands and forests and crosses the hills and farmlands of the hundred odd miles between Ottawa and Kingston. This is one of the many trails being developed all across the country for the enjoyment of both the long-distance and the afternoon hiker.*

Don Woodcock

*Camping has become the most popular form of family recreation in Canada, overtaking the abundant camping places provided in the national and provincial parks.*

*Fishing still gives perhaps the greatest pleasure to the summer vacationist. This one has taken a 30-pound lake trout from Saganaga Lake in the Thunder Bay Forest District.*

Ontario Department of Lands and Forests







compared with one of \$218,000,000 in 1969, which increase was entirely accounted for by the negative balance with overseas countries; there was a \$146,000,000 surplus in Canada's travel account with the United States.

The assurance in Canadian spending abroad has been augmented by the continuing increase in availability of economical charter flights and special excursions which have enabled students, young people and lower income groups to travel in much greater numbers. Also contributing to some extent in this increase was the unpegging of the Canadian dollar on May 31, 1970, which resulted in greater purchasing power for the Canadian traveller abroad, and the easing of currency restrictions on travel by the United Kingdom, France and Japan, which permitted greater per capita spending.

**Travel Between Canada and the United States.**—During 1970, some 37,153,000 United States residents visiting Canada spent an estimated \$1,081,900,000. Of these, 23,505,100 were short-term visitors (persons entering and leaving on the same day) who spent \$129,300,000. This short-term traffic accounted for 63 p.c. of the total entries from the United States but for only about 12 p.c. of the total expenditure. Travellers remaining one or more nights, on the other hand, accounted for only 37 p.c. of the total entries but for 88 p.c. of the expenditure. Thus, there appears to be a strong correlation between the longer-term traffic and total expenditure.

The most common means of transportation used to enter Canada from the United States is the automobile. In 1970, 20,804,000 short-term and 11,214,000 long-term travellers came by car, together accounting for 86 p.c. of the total entries from that country. These automobile travellers spent an estimated \$732,300,000 which was 68 p.c. of the total spent by United States visitors and, of that amount, \$627,800,000 or 86 p.c. was spent by long-term visitors. Arrivals by other means of transport were: air, 1,286,000, a 13.5-p.c. increase over 1969; bus, 1,065,000, a 22.9-p.c. increase; boat, 598,000, a 13.3-p.c. increase; and rail, 140,000. The latter number was down by 29.3 p.c. from the previous year as a result of the closure of rail service through various points of entry across the country. United States visitors by air spent an estimated \$184,200,000, by bus \$107,700,000, by boat \$16,500,000, and by rail \$22,500,000.

Expenditures of Canadian travellers in the United States amounted to \$935,900,000 in 1970, a 4.9-p.c. increase over such expenditures in 1969. The number of Canadian residents returning from the United States rose to 35,656,000 from 35,441,700 in 1969, the increase being in long-term traffic which was 4.4 p.c. higher than in the preceding year; short-term traffic, on the other hand, showed a slight decrease. Long-term travellers comprised only 27.3 p.c. of the total re-entries from the United States but for 93.8 p.c. of the total spending.

The results of a voluntary questionnaire used to obtain information on travel habits of Canadians travelling to the United States indicated that in 1970, of those replying, 35.3 p.c. were residents of Ontario whose expenditures made up 43.7 p.c. of the total payments to the United States; Quebec accounted for 35.0 p.c. of the travellers and 28.3 p.c. of the payments. Of all those replying, 55.9 p.c. stated that holiday or recreation was the prime reason for visiting the United States, 26.9 p.c. visited friends or relatives and 9.2 p.c. went for business reasons. Quebec recorded the highest percentage of holiday trips (40.9) and Ontario recorded the highest percentages of visits to friends or relatives (37.2) and of business trips (43.5).

**Travel Between Canada and Overseas Countries.**—In 1970, overseas visitors entering Canada (direct and by way of the United States) numbered 535,532, a 15.6-p.c. increase over the preceding year. Their expenditures, including transportation costs, amounted to \$152,000,000—while in Canada they spent about \$103,000,000—the increase



of 29.7 p.c. over 1969 resulting partly from the relaxation of currency restrictions mentioned above. In the United Kingdom, for example, relaxed restrictions now allow each member of a family travelling abroad to spend up to \$780 a year; previously the amount allowed was \$130. In 1970, 157,700 overseas visitors came from the United Kingdom, constituting 29.5 p.c. of the total; they spent \$44,000,000 in Canada compared with \$29,000,000 in 1969. Visitors from other sterling areas numbered 74,500 and recorded expenditures of \$23,000,000; those from other OECD countries in Europe numbered 68,000 with expenditures of \$53,000,000.

Of the overseas visitors who replied to the questionnaire survey, 42.6 p.c. stated Ontario as their province of destination and 28.3 p.c. stated Quebec. Further stratification showed that 52.9 p.c. of the United Kingdom residents visiting Canada, 49.6 p.c. of the visitors from other sterling areas, and 37.2 p.c. of those from OECD countries in Europe stated Ontario as their destination. Visitors from the United Kingdom remained in Canada an average of 25.1 nights compared with 22.6 nights in 1969; visitors from other sterling areas remained an average of 13.9 nights compared with 16.0 nights in 1969; and those from other OECD countries in Europe remained 21.1 nights compared with 18.8 in the preceding year.

Canadian residents returning in 1970 from visits overseas numbered 1,099,429—957,429 returning direct and 142,000 by way of the United States—representing a 29.1-p.c. increase over 1969. Total Canadian expenditure overseas was estimated at \$524,000,000, including payments made to overseas carriers for transportation; \$156,000,000 was spent in the United Kingdom, \$66,000,000 in other sterling areas, \$207,000,000 in other OECD countries in Europe, and \$95,000,000 in all other countries.

Questionnaire response of Canadians returning direct from overseas visits showed that, of the total replying, 22.5 p.c. visited the United Kingdom only; 12.2 p.c. visited the United Kingdom and other OECD areas in Europe; and 20.9 p.c. visited other OECD countries in Europe only. The average length of stay while visiting the United Kingdom only was 26.2 nights compared with 25.2 in 1969; visitors to the United Kingdom and other OECD countries in Europe remained 32.7 nights, the same as in 1969; and visitors to other OECD countries in Europe only stayed 29.1 nights, a slightly shorter time than in 1969.

Canadian residents returning from overseas indicated that holiday or recreation were the main reasons for visiting (57.4 p.c.), followed by visiting friends or relatives (29.7 p.c.); 52.9 p.c. of them gave Ontario as their province of residence and 21.4 p.c. were Quebec residents.

### 1.—Number and Expenditure of United States Travellers in Canada and Canadian Travellers in the United States, 1961-70

Year	U.S. Travellers in Canada	U.S. Expenditure in Canada	Canadians Travelling in U.S.	Canadian Expenditure in U.S. <sup>1</sup>	Excess of U.S. Travellers in Canada	Balance of Payments with the U.S.
	No.	\$'000	No.	\$'000	No.	\$'000
1961.....	30,474,200	435,317	29,288,500	458,729	+1,185,700	- 23,412
1962.....	31,656,400	512,407	27,944,600	419,113	+3,711,800	+ 93,294
1963.....	31,864,800	548,871	29,389,800	387,640	+2,475,000	+161,231
1964.....	32,463,100	590,148	32,164,100	481,092	+ 299,000	+109,056
1965.....	33,887,300	659,843	33,433,400	548,377	+ 453,900	+111,466
1966.....	35,325,000	729,932	34,679,900	628,150	+ 645,100	+101,782
1967.....	39,975,600	1,164,223	32,499,900	626,538	+7,475,700	+537,685
1968.....	34,775,800	891,234	33,948,500	710,223	+ 827,300	+181,011
1969.....	35,765,600	961,314	35,441,700	892,562	+ 323,900	+ 68,752
1970.....	37,153,000	1,081,900	35,656,000	935,900	+1,497,000	+146,000

<sup>1</sup> Includes Hawaii and transportation fares paid to United States carriers by Canadians travelling overseas via the United States.

**2.—Number and Expenditure of United States Travellers in Canada and Canadian Travellers in the United States, by Means of Travel and Length of Stay, 1969 and 1970**

Year and Item	U.S. Travellers in Canada <sup>1</sup>	U.S. Expenditure in Canada	Canadians Travelling in the U.S. <sup>1</sup>	Canadian Expenditure in the U.S. <sup>2</sup>	Excess of U.S. Travellers in Canada	Excess of U.S. Expenditure in Canada
	No.	\$'000	No.	\$'000	No.	\$'000
<b>1969</b>						
<b>Short-Term.....</b>	<b>23,453,300</b>	<b>121,108</b>	<b>26,115,200</b>	<b>56,601</b>	<b>-2,661,900</b>	<b>+ 64,507</b>
Automobile.....	20,732,900	98,551	22,934,000	45,374	-2,201,100	+ 53,177
Aircraft.....	114,500	2,265	41,500	2,627	+ 73,000	- 362
Bus.....	261,700	1,815	94,700	1,006	+ 167,000	+ 809
Rail.....	33,300	131	100	3	+ 33,200	+ 128
Boat.....	249,900	1,163	24,100	38	+ 225,800	+ 1,125
Other.....	2,061,000	17,183	3,020,800	7,553	- 959,800	+ 9,630
<b>Long-Term.....</b>	<b>12,312,300</b>	<b>840,206</b>	<b>9,326,500</b>	<b>795,011</b>	<b>+2,985,800</b>	<b>+ 45,195</b>
Automobile.....	10,246,200	561,559	7,349,400	450,544	+2,896,300	+111,015
Aircraft.....	1,018,300	159,416	1,159,400	258,516	- 141,100	- 99,100
Bus.....	605,200	78,361	595,100	65,075	+ 10,100	+ 13,286
Rail.....	164,700	29,555	114,900	16,084	+ 49,800	+ 13,471
Boat.....	277,900	11,315	107,700	4,792	+ 170,200	+ 6,523
<b>Totals, 1969.....</b>	<b>35,765,600</b>	<b>961,314</b>	<b>35,441,700</b>	<b>851,612</b>	<b>+ 323,900</b>	<b>+109,702</b>
<b>1970</b>						
<b>Short-Term.....</b>	<b>23,505,000</b>	<b>129,300</b>	<b>25,921,000</b>	<b>54,800</b>	<b>-2,416,000</b>	<b>+ 74,500</b>
Automobile.....	20,804,000	104,500	22,891,000	45,300	-2,087,000	+ 59,200
Aircraft.....	120,000	3,000	52,000	2,400	+ 68,000	+ 600
Bus.....	335,000	2,400	79,000	600	+ 256,000	+ 1,800
Rail.....	14,000	—	—	—	+ 14,000	—
Boat.....	186,000	700	22,000	—	+ 164,000	+ 700
Other.....	2,046,000	18,700	2,877,000	6,500	- 831,000	+ 12,200
<b>Long-Term.....</b>	<b>13,648,000</b>	<b>952,600</b>	<b>9,735,000</b>	<b>833,700</b>	<b>+3,913,000</b>	<b>+118,900</b>
Automobile.....	11,214,000	627,800	7,804,000	513,600	+3,410,000	+114,200
Aircraft.....	1,166,000	181,200	1,143,000	241,300	+ 23,000	- 60,100
Bus.....	730,000	105,300	599,000	65,600	+ 131,000	+ 39,700
Rail.....	126,000	22,500	86,000	11,200	+ 40,000	+ 11,300
Boat.....	412,000	15,800	103,000	2,000	+ 309,000	+ 13,800
<b>Totals, 1970.....</b>	<b>37,153,000</b>	<b>1,081,900</b>	<b>35,656,000</b>	<b>888,500</b>	<b>+1,497,000</b>	<b>+193,400</b>

<sup>1</sup> Includes substantial amounts of in-transit, commuting, and local traffic.<sup>2</sup> Excludes Hawaii and transportation fares paid to United States carriers by Canadians travelling overseas via the United States.

## 3.—Highway Traffic at Canadian Border Points, 1969 and 1970

Year and Province or Territory	Foreign Vehicles Inward			Canadian Vehicles Returning		
	Same Day	One or More Nights in Canada	Commercial Vehicles	Same Day	One or More Nights in U.S.	Commercial Vehicles
	No.	No.	No.	No.	No.	No.
<b>1969</b>						
Atlantic Provinces.....	1,353,855	250,336	64,560	2,005,302	163,782	132,824
Quebec.....	837,944	644,799	108,481	1,494,867	905,142	202,319
Ontario.....	5,599,252	2,053,245	336,292	4,292,929	869,351	558,281
Manitoba.....	153,284	110,770	18,142	194,604	118,748	25,376
Saskatchewan.....	51,580	37,572	10,533	89,635	41,889	33,100
Alberta.....	46,143	76,845	14,601	67,014	50,153	7,680
British Columbia.....	491,116	509,466	73,323	1,321,648	389,434	42,464
Yukon Territory.....	5,850	25,348	3,382	1,382	2,372	1,616
<b>Totals, 1969.....</b>	<b>8,539,024</b>	<b>3,708,381</b>	<b>629,314</b>	<b>9,467,381</b>	<b>2,540,871</b>	<b>1,003,660</b>
<b>1970</b>						
Atlantic Provinces.....	1,357,021	305,730	62,749	2,009,200	190,900	141,100
Quebec.....	881,995	727,117	123,652	1,506,500	964,300	229,400
Ontario.....	5,592,990	2,161,570	324,730	4,106,100	872,500	531,400
Manitoba.....	158,509	134,397	19,873	191,500	133,900	26,000
Saskatchewan.....	53,852	39,576	10,617	84,200	41,400	28,200
Alberta.....	50,322	86,150	15,069	68,700	52,500	9,100
British Columbia.....	557,280	547,856	70,074	1,452,500	421,900	45,100
Yukon Territory.....	4,805	26,960	3,721	1,100	2,300	1,100
<b>Totals, 1970.....</b>	<b>8,656,774</b>	<b>4,029,356</b>	<b>630,485</b>	<b>9,419,800</b>	<b>2,679,700</b>	<b>1,011,400</b>

4.—Travel Receipts and Payments Between Canada and Overseas Areas,<sup>1</sup> 1968-70

(Millions of dollars)

Overseas Area	Receipts			Payments		
	1968	1969	1970 <sup>p</sup>	1968	1969	1970 <sup>p</sup>
United Kingdom.....	23	29	44	103	145	156
Other sterling areas.....	13	18	23	41	52	66
Other OECD in Europe.....	32	40	53	121	153	207
All other countries.....	19	26	32	33	49	95
<b>Totals.....</b>	<b>87</b>	<b>113</b>	<b>152</b>	<b>298</b>	<b>399</b>	<b>524</b>

<sup>1</sup> Excludes Hawaii.

# CHAPTER XXII.—GOVERNMENT FINANCE\*

## CONSPECTUS

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*The interpretation of the symbols used in the tables throughout the Year Book will be found on p. vii of this volume.*

Consolidated statistics of revenue and expenditure for all governments in Canada—federal, provincial and municipal—are presented in Section 1 of this Chapter and Section 2 covers the incidence of taxation at the three levels. More detailed information for each level of government is given in Sections 3, 5 and 6. Section 4 gives information on joint federal-provincial programs and on the extent of federal financial participation in such programs.

## Section 1.—Consolidated Government Finance Statistics

Tables 1 and 2 provide details of the federal and provincial-local government components of consolidated government revenue by source, and consolidated government expenditure by function. The object of these consolidations is to reflect the relationship between government and the public in respect of revenue raised and services provided. The consolidated net general figures were arrived at by eliminating from the gross revenue and the corresponding functionalized expenditure of each level of government, the following: conditional grants (grants-in-aid and shared-cost contributions); institutional revenue; and interest, premium, discount and exchange revenue. In addition, transfers of unconditional grants, such as subsidy payments of the Federal Government to provincial governments, have also been eliminated from the gross revenue of the receiving government and from the gross expenditure of the paying government. Because of the differing accounting practices of governments and the variations in fiscal year-ends, some discrepancies appear between amounts recorded as intergovernment transfers received and those recorded as paid.

\* Except as otherwise indicated, revised in the Governments Division, Statistics Canada.



# 1.—Consolidated Government Revenue, by Source, Fiscal Years Ended Nearest to Dec. 31, 1967 and 1968

(After elimination of intergovernment transfers)

Source	1967			1968		
	Federal	Provincial-Local	Total	Federal	Provincial-Local	Total
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Taxes—</b>						
Income—						
Corporations.....	1,820,589	596,020	2,416,609	2,213,040	660,326	2,873,366
Individuals.....	3,649,674	1,461,957	5,111,631	4,334,430	1,764,302	6,098,732
On certain payments and credits to non-residents.....	220,472	—	220,472	205,566	—	205,566
On premiums of insurance companies.....	—	58,221	58,221	—	65,981	65,981
Other, on corporations.....	—	28,427	28,427	—	43,989	43,989
Real property.....	—	2,251,123	2,251,123	—	2,531,422	2,531,422
Personal property.....	—	9,025	9,025	—	—	—
Business.....	—	212,950	212,950	—	236,656	236,656
Special assessments (owners' share)	—	205,411	205,411	—	227,631	227,631
Poll.....	—	2,566	2,566	—	2,870	2,870
<b>Sales—</b>						
General.....	2,145,609	1,259,626	3,405,235	2,097,963	1,395,886	3,493,849
Motor fuel and fuel oil.....	—	792,909	792,909	—	944,309	944,309
Alcoholic beverages.....	—	837	837	—	1,024	1,024
Amusements and admissions.....	—	53,427	53,427	—	59,191	59,191
Tobacco.....	—	75,633	75,633	—	137,676	137,676
Other commodities and services.....	—	63,851	63,851	—	59,719	59,719
<b>Totals, Sales Taxes.....</b>	<b>2,145,609</b>	<b>2,246,283</b>	<b>4,391,892</b>	<b>2,097,963</b>	<b>2,597,805</b>	<b>4,695,768</b>
Excise duties and special excise taxes.....	860,484	—	860,484	884,706	—	884,706
Customs import duties.....	746,437	—	746,437	761,681	—	761,681
Estate taxes and succession duties.....	102,192	109,287	211,479	112,377	121,934	234,311
Hospital insurance premiums.....	—	225,583	225,583	—	354,256	354,256
Other taxes.....	12,024	33,899	45,923	9,428	46,358	55,786
<b>Totals, Taxes.....</b>	<b>9,557,481</b>	<b>7,440,752</b>	<b>16,998,233</b>	<b>10,619,191</b>	<b>8,653,530</b>	<b>19,272,721</b>
<b>Privileges, Licences and Permits—</b>						
Liquor control and regulation.....	—	68,960	68,960	—	84,613	84,613
Motor vehicles.....	—	325,217	325,217	—	324,782	324,782
Natural resources.....	4,292	503,401	507,693	12,623	595,935	608,558
Other.....	11,515	98,794	110,309	16,300	124,435	140,735
<b>Totals, Privileges, Licences and Permits.....</b>	<b>15,807</b>	<b>996,372</b>	<b>1,012,179</b>	<b>28,923</b>	<b>1,129,765</b>	<b>1,158,688</b>
<b>Sales and services.....</b>	<b>204,188</b>	<b>408,473</b>	<b>612,661</b>	<b>235,074</b>	<b>517,845</b>	<b>752,919</b>
Fines and penalties.....	6,138	81,819	87,957	5,568	83,548	89,116
Interest, discount, premium and foreign exchange.....	423,367	217,864	641,231	497,090	342,111	839,201
Contributions from Enterprises—						
Liquor boards and commissions.....	—	363,083	363,083	—	388,241	388,241
Other enterprise remittances.....	189,723	41,339	231,062	200,253	49,313	249,566
<b>Totals, Contributions from Enterprises.....</b>	<b>189,723</b>	<b>404,422</b>	<b>594,145</b>	<b>200,253</b>	<b>437,554</b>	<b>637,807</b>
Bullion and coinage.....	17,152	—	17,152	78,147	—	78,147
Postal services.....	327,224	—	327,224	363,487	—	363,487
Other revenue.....	8,901	114,298	123,199	5,075	142,582	147,657
<b>Totals, Gross Revenue from Own Sources.....</b>	<b>10,749,981</b>	<b>9,664,000</b>	<b>20,413,981</b>	<b>12,032,808</b>	<b>11,306,935</b>	<b>23,339,743</b>
Federal enterprises—in lieu of taxes.....	—	8,756	8,756	—	8,023	8,023
Provincial enterprises—in lieu of taxes.....	—	16,836	16,836	—	13,279	13,279
<b>Deduct—</b>						
Revenue derived from expenditure functions.....	6,141	31,602	37,743	5,901	32,249	38,150
Interest revenue (contra debt charges).....	368,178	203,529	571,707	412,580	313,037	725,617
<b>Totals, Consolidated Government Revenue.....</b>	<b>10,375,662</b>	<b>9,454,461</b>	<b>19,830,123</b>	<b>11,614,327</b>	<b>10,982,951</b>	<b>22,597,278</b>

## 2.—Consolidated Government Expenditure, by Function, Fiscal Years Ended Nearest to Dec. 31, 1967 and 1968

(After elimination of intergovernment transfers)

Function	1967			1968		
	Federal	Provincial-Local	Total	Federal	Provincial-Local	Total
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
General government.....	474,674	568,617	1,043,291	688,033	646,655	1,334,688
Protection of persons and property..	219,303	752,816	972,119	244,689	844,471	1,089,160
Transportation and communications..	657,267	1,552,995	2,210,262	592,577	1,748,176	2,340,753
Sanitation and waste removal.....	—	462,701	462,701	9,756	537,438	547,194
Health.....	617,829	1,657,994	2,275,823	736,883	1,854,293	2,591,176
Social welfare.....	2,580,356	664,038	3,244,394	2,852,144	824,809	3,676,953
Recreational and cultural services...	108,825	303,611	412,436	86,060	348,757	434,817
Education.....	452,627	3,748,096	4,200,723	589,145	4,217,737	4,806,882
Natural resources and primary industries.....	682,497	357,671	1,040,168	690,328	393,468	1,083,796
Trade and industrial development..	211,957	56,725	268,682	195,483	61,766	257,249
National capital region planning and development.....	22,879	—	22,879	19,928	—	19,928
Local government planning and development.....	—	25,067	25,067	—	26,937	26,937
Defence services and mutual aid....	1,783,965	—	1,783,965	1,796,956	—	1,796,956
Veterans' pensions and other benefits	401,039	—	401,039	427,897	—	427,897
Debt charges (excluding retirement)	939,695	595,055	1,534,750	1,074,371	704,386	1,778,757
Contributions to enterprises.....	217,831	35,930	253,761	224,995	36,921	261,916
International co-operation and assistance.....	167,353	—	167,353	149,214	—	149,214
Other Expenditures—						
Citizenship and immigration.....	24,420	—	24,420	33,475	—	33,475
External affairs.....	50,197	—	50,197	61,164	—	61,164
Postal services.....	374,168	—	374,168	430,608	—	430,608
Royal Canadian Mint.....	3,997	—	3,997	4,379	—	4,379
Housing research and slum clearance.....	15,514	26,781	42,295	30,022	28,074	58,096
Home owners' subsidies.....	—	61,914	61,914	—	26,356	26,356
Emergency measures.....	10,156	1,657	11,813	—	76,535	76,535
Provision for reserves.....	—	46,693	46,693	—	—	—
Special projects.....	—	3,907	3,907	361,523	128,978	490,501
Other.....	264,462	283,336	547,798	—	—	—
Totals, Other Expenditure.....	742,914	424,288	1,167,202	921,171	259,943	1,181,114
<b>Totals, Consolidated Government Expenditure.</b>	<b>10,281,011</b>	<b>11,205,604</b>	<b>21,486,615</b>	<b>11,299,630</b>	<b>12,505,757</b>	<b>23,805,387</b>

## Section 2.—Taxation in Canada\*

Taxes are imposed in Canada by the Federal Government, by the provincial governments and by municipalities. The Government of Canada has the right to raise money "by any mode or system of taxation" while the provincial legislatures are restricted to "direct taxation within the province in order to the raising of a revenue for provincial purposes". Thus, the provinces have a right to use only the field of direct taxation and the Federal Government is not subject to any constitutional restriction in matters of taxation. Municipalities derive their incorporation with its associated powers, fiscal and otherwise, from the provincial government concerned. Thus, municipalities are also limited to direct taxation.

A direct tax is generally recognized as one "which is demanded from the very person who it is intended or desired should pay it". This concept has limited the provincial governments to the imposition of income tax, retail sales tax, succession duties and an assortment of other direct levies. In turn, municipalities, acting under provincial legislation, tax real estate, water consumption and places of business. The Federal Government levies taxes on income, excise taxes, excise and customs duties, and a sales tax.

\* Revised (March 1972) in the Tax Policy Branch, Department of Finance, under the direction of F. R. Irwin, Director of the Personal, Commodity and Estate Tax Division, and by the provincial authorities concerned.

Starting in 1941, a series of federal-provincial tax agreements were concluded to promote the orderly imposition of direct taxes. The duration of each agreement was normally five years. Under the earlier agreements, the participating provinces undertook in return for compensation not to use, or permit their municipalities to use, certain of the direct taxes. Under more recent arrangements, the federal personal and corporation income tax otherwise payable in all provinces and the estate tax otherwise payable in three provinces are abated by certain percentages to make room for provincial levies.

Federal tax reform amendments passed in 1971, which became effective for the most part from the beginning of 1972, included a new personal income tax rate structure which was not designed to be abated in the previous way. At the same time the federal estate tax was terminated. As a result, the arrangement under which federal taxes are abated has general application now only for the corporation income tax. All provinces impose taxes on the income of individuals and corporations and all but Alberta impose taxes on property passing at death. As part of the current fiscal arrangements, the Federal Government has entered into tax collection agreements under which it collects provincial personal income taxes for all provinces except Quebec, provincial corporation income taxes for all provinces except Ontario and Quebec, and provincial succession duties for all provinces except Quebec, Ontario and British Columbia.

### Subsection 1.—Federal Taxes

#### Individual Income Tax

Personal income taxation in Canada is imposed on the basis of residence. Every individual who is resident in Canada at any time during a year is liable for the payment of income tax on all his income. A non-resident individual is liable for tax only on income from sources in Canada. The term "residence" is difficult to define simply but, generally speaking, it is taken to be the place where a person resides or where he maintains a dwelling ready at all times for his use. There are also statutory extensions of the meaning of "resident" to include a person who has sojourned in Canada for an aggregate period of 183 days in a taxation year, or a person who was during the year a member of the armed forces of Canada, or an officer or servant of Canada or of any one of its provinces, or the spouse or dependent child of any such person. The extended meaning of resident also includes employees who go from Canada to work under certain international development assistance programs.

The Canadian tax law uses the concepts "income" and "taxable income". The income of a resident of Canada for a taxation year comprises his revenues from all sources inside or outside Canada and includes income for the year from businesses, property, offices and employments. Starting in 1972, it also includes one half of taxable capital gains.

In computing his income, an individual must include benefits from employment, fees, commissions, dividends, annuities, pension benefits, interest, alimony and maintenance payments. Also included are unemployment insurance benefits, scholarships in excess of \$500, benefits under a disability insurance plan to which his employer contributes and other miscellaneous items of income. On the other hand, war service disability pensions paid by Canada or a country that was an ally of Her Majesty at the time of the war service, social assistance payments made on a needs-test basis under a prescribed program, compensation in respect of an injury or death paid under a Workmen's Compensation Act of a province and family income security payments do not have to be included in the computation of income.

An employee does not have to include in his income allowances paid to him by his employer to cover travelling expenses to a distant work site, or board and lodging while at the site. In order to qualify, the worker must travel away from his ordinary residence in which he supports his wife or other dependant, the work site must be temporary and the time away from his ordinary residence must be at least 36 hours.



Certain amounts are deductible in computing income. These include contributions to a registered employees' pension plan, premiums to a registered retirement savings plan, premiums under the unemployment insurance program, alimony payments and union dues. An employee may deduct 3 p.c. of his salary or wages (up to a maximum of \$150 per year) to cover expenses of earning his income. No receipts or details of actual expenditures are necessary to claim this deduction. Expenses of meals and lodging while away from home are deductible by employees who have to travel as they perform their work, such as employees who work on trains or who drive trucks. Where a mother has her children cared for in order that she may work, she may deduct this expense subject to certain limitations. A father may deduct child care expenses where he is the only parent of the family or where the mother is incapable of caring for the children. Expenses of moving to a new work location are deductible from income earned in the new location. These moving expenses may be deducted by salary or wage earners, self-employed persons and, in some instances, by students at post-secondary educational institutions. Students attending universities, colleges, high schools or certain other certified educational institutions in Canada may deduct their tuition fees if they exceed \$25 per annum. Students in full-time attendance at universities outside Canada are also allowed to deduct their tuition fees.

An individual who is carrying on a business may deduct his business expenses in computing his income. These include wages, rents, depreciation (called capital cost allowances), municipal taxes, interest on borrowed money, reserves for doubtful debts, contributions to pension plans or profit-sharing plans for his employees, and bad debts.

All individuals now have to bring half of their capital gains into income. They may deduct half of their capital losses against these gains. In the event that half of an individual's losses exceed the amount included in income in respect of capital gains, \$1,000 of these losses may be deducted from other income. Losses not deducted in the year incurred may be carried back one year or forward to future years to be deducted. Capital gains or losses are those realized on the disposition of property. Other gains or losses such as from a lottery or gambling are not included. The sale of personal property at a price not exceeding \$1,000, and the sale of a taxpayer's home, do not create a capital gain or loss. A sale or disposition of property is deemed to have taken place when the taxpayer dies or makes a gift of property unless the property is left or given to his spouse. The amount of a capital gain or loss on disposition of property is determined by reference to its adjusted cost basis. Capital gains on property owned at the beginning of the system are computed by reference to the higher of cost or valuation-day value and capital losses by reference to the lower of cost or valuation-day value. When property is acquired after valuation day, actual cost plus or minus adjustments after that date will give the adjusted cost basis. Valuation day for purposes of shares that are publicly traded on Canadian stock exchanges was Dec. 22, 1971 and the valuation day for all other property, such as bonds, rental property, cottages or shares in a private company was Dec. 31, 1971. Special rules apply for individuals who become, or who cease to be, residents of Canada. Gains arising out of the conduct of a business continue to be fully taxable.

Having computed his income, the individual then calculates his taxable income by deducting certain exemptions and deductions. These are: for single status, \$1,500; for married status, \$2,850; for dependent children under age 16, \$300 per child; for other dependants (as defined in the law), including dependent children over age 15 and under 21 or over 20 and attending school, \$550 per dependant; where the taxpayer is 65 years of age or over, an additional \$650; where the taxpayer is blind or confined for the whole of the taxation year to a bed or a wheelchair, an additional \$650; charitable donations, up to 20 p.c. of income; and medical expenses, the amount in excess of 3 p.c. of income. In lieu of claiming deductions for charitable donations and medical expenses an individual may claim a standard deduction of \$100.

The extra deduction for married status is reduced where the taxpayer's spouse has income in excess of \$250. The deduction of \$300 for supporting a child is reduced where the child has income in excess of \$1,000 and the deduction of \$550 is reduced where the



dependant has income in excess of \$1,050. The amount of the guaranteed income supplement, which is a payment made to individuals who have little or no income in addition to their old age pension, is deductible in computing taxable income. Individuals who have incurred business losses in other years may deduct these in computing taxable income.

As already stated, an individual who is resident in Canada is taxed on his income from both inside and outside Canada. An individual who is not resident in Canada at any time during the year but who carries on business in Canada or who earns salary or wages in Canada is taxed on the income earned in Canada. In computing taxable income earned in Canada, such a non-resident individual is allowed to deduct that part of the exemptions and deductions that may reasonably be attributed to the income earned in Canada. (A non-resident who derives investment or pension income from Canada is taxed in a different way, described on p. 1128.) An individual who ceases to be a resident of Canada during the year or who becomes a resident during the year so that he is resident for only part of the year is subject to income tax as a resident of Canada on only that part of his income for the year received while he is resident in Canada. In these circumstances, the deductions from income permitted in determining taxable income are the amounts which may reasonably be considered as applicable to the period during which he is resident in Canada.

A non-resident who disposes of taxable Canadian property (shares of Canadian public corporations are excluded unless ownership exceeds 25 p.c.) is liable for tax on one half of any capital gain. Capital gains or losses from the disposal of taxable Canadian property are combined with the non-resident's Canadian employment or business income. This taxation of capital gains is subject to restrictions in a number of tax treaties between Canada and other countries.

Two provisions were enacted in 1971 to provide for averaging income over a period of years where income for a year is unusually high. The first of these is an averaging calculation that will be made by the Department of National Revenue where an individual's income for the year is 20 p.c. more than the average of his incomes for the preceding four years and 10 p.c. more than his income for the immediately preceding year. This calculation, which will be made without application by the taxpayer, will reduce the effects of the progressive schedule of rates upon an unusual increase in income in the year. The calculation will first be made for 1973, using 1972 as the base. It will not be possible to use four preceding years in the base until 1976. The second averaging device, which first becomes effective for 1972, is by the purchase of a special type of annuity contract called an income-averaging annuity. The cost of this annuity contract is deductible from income in the year it is purchased and the annuity payments are included in income when received. Only certain kinds of income may be used to purchase an income-averaging annuity. These include capital gains, a lump sum from a pension plan, proceeds from a literary or artistic work or amounts received from activities as an athlete, musician or public entertainer.

The amount of tax is determined by applying a progressive schedule of rates to taxable income. This schedule of rates starts at 17 p.c. on the first \$500 of taxable income and increases to 47 p.c. on taxable income in excess of \$60,000. For 1972, tax otherwise payable is reduced by 3 p.c. In addition, the Income Tax Act provides that the rate of tax on the first \$500 of taxable income, which is 17 p.c. in 1972, will be reduced each year until it becomes 6 p.c. in 1976.

Individuals who reside in the Yukon or Northwest Territories or who reside outside of Canada but are deemed to be residents in Canada for tax purposes (such as diplomats and others posted outside the country) must pay an additional tax of 30 p.c. of their tax otherwise payable. This tax is intended to correspond in an approximate way to the income tax imposed by the provinces on their residents.

An individual who receives a taxable dividend from a Canadian corporation is allowed to deduct an amount called a dividend tax credit from his tax otherwise payable. This is

in recognition of the fact that the earnings from which the dividend is paid have borne corporation income tax. It also provides encouragement for Canadians to participate in ownership of Canadian corporations. The individual increases the amount of the dividends he has received by one third and includes this additional one third in his income. He then deducts from his tax an amount equal to four fifths of the additional one third that was included in his income.

An individual who receives income from foreign sources may deduct from his tax the amount of tax he has paid to a foreign government on his foreign source income. This deduction may not exceed the Canadian tax related to such income.

An individual who earns income in the Province of Quebec may deduct 24 p.c. of his tax attributable to such income. This abatement of tax is in recognition of the fact that Quebec entirely finances certain programs which are partly financed by the Federal Government in other provinces.

To a very large extent, individual income tax is payable as the income is earned. Tax-payers in receipt of salary or wages have tax deducted from their pay by their employer and in this way pay nearly 100 p.c. of their tax liability during the calendar year. The balance of the tax, if any, is payable at the time of filing the tax return on or before Apr. 30 in the following year. Individuals with more than 25 p.c. of their income in a form not subject to tax deductions at the source must pay tax by quarterly instalments throughout the year. Returns of these individuals must be filed on or before Apr. 30 in the following calendar year. Farmers and fishermen pay two thirds of their tax on or before Dec. 31 each year and the remainder on or before Apr. 30 in the following year.

The following statement shows the amount of personal income tax payable on various levels of income in 1972:—

<i>Status</i>	<i>Income</i>	<i>Federal Income Tax</i>	<i>Provincial Income Tax</i>
	\$	\$	\$
Single taxpayer—no dependants.....	1,600	—	—
	2,000	56	18
	2,500	140	44
	3,000	227	71
	5,000	599	188
	8,000	1,235	388
	10,000	1,705	536
	20,000	4,756	1,495
	50,000	16,241	5,107
	100,000	38,580	12,131
Married taxpayer—no dependants.....	3,000	—	—
	4,000	157	49
	5,000	336	106
	8,000	935	294
	10,000	1,379	434
	20,000	4,297	1,351
	50,000	15,677	4,929
	100,000	37,964	11,937
Married taxpayer—two children under age 16.....	4,000	54	17
	5,000	225	71
	8,000	813	256
	10,000	1,248	392
	20,000	4,093	1,287
	50,000	15,427	4,851
	100,000	37,690	11,851

It should be noted that in calculating the above taxes it has been assumed that all income is from salary or wages and all taxpayers take the standard deduction of \$100 and the employment expense deduction. No account has been taken of other deductions such as for child care expenses, unemployment insurance contributions or the additional old age deduction. The federal tax shown is for income earned in any province except Quebec. The special 3-p.c. reduction in 1972 has been taken into account. The provincial income tax is calculated at 30.5 p.c. of federal tax otherwise payable (i.e., before the special reduction of 3 p.c. for 1972). Some provinces impose tax at a rate higher than 30.5 p.c.

## Corporation Income Tax

The Income Tax Act levies a tax upon the income from anywhere in the world of corporations resident in Canada and upon the income attributable to operations in Canada of non-resident corporations carrying on business in Canada. One half of capital gains must be included in income.

In computing their income, corporations may deduct operating expenses including municipal real estate taxes, reserves for doubtful debts, bad debts and interest on borrowed money. The deduction for interest includes interest on money borrowed to acquire shares in another corporation. There is a limitation on the deduction of interest paid to non-residents. One half of capital losses may be deducted from the capital gains included in income.

Corporations may deduct over a period of years the capital cost of all depreciable property. The yearly deductions of normal capital cost allowances are computed on the diminishing balance principle. Regulations issued under authority of the Income Tax Act establish a number of classes of property and maximum rates. Typical rates include 5 p.c. and 10 p.c. for buildings, 20 p.c. for machinery and 30 p.c. for automobiles. Where property is disposed of for more than the amount to which it has been written down by capital cost allowances, the excess allowances are "recaptured" through an addition to income or by an adjustment to the undepreciated balance for the class of property.

Accelerated depreciation (full write-off in two years) is allowed in respect of structures and equipment acquired in the period Apr. 27, 1965 to Dec. 31, 1973 to prevent water pollution, and in the period Mar. 13, 1970 to Dec. 31, 1973 to prevent air pollution.

A taxpayer who does not elect to receive a grant under the Training-on-the-Job Program may deduct 60 p.c. of approved wage costs incurred in the period after October 1971 and before April 1974. This deduction is in addition to the normal deduction for wages. Expenditures on scientific research related to the business of the taxpayer may be written off for tax purposes in the year when incurred.

A corporation whose principal business is mining, oil production and allied activities may deduct the costs of exploration and development in Canada against any income in the year the costs were incurred or in subsequent years.

Taxpayers who do not meet the "principal business" test are entitled to deduct exploration and development expenses from mining and petroleum income. Starting in 1972, these expenses will be deductible from other income over a period of time if they exceed mining and petroleum income.

Taxpayers may deduct certain foreign drilling expenses from directly related foreign-source income. Starting in 1972, all taxpayers may put foreign exploration and development expenses in a separate asset class and deduct them over a period of time if they exceed income from foreign mineral and petroleum properties.

The profits derived during the first three years of operation of a new mine are exempt from income tax until Dec. 31, 1973. In place of the three-year tax exemption there will be an immediate write-off of capital equipment and facilities for a new mine to the extent of income from the mine. The assets eligible for this accelerated depreciation include buildings, mining machinery, processing facilities and "social capital" such as access roads, sewage plants, housing, schools, airports and docks. The accelerated write-off provision for new mines will also apply in the case of a major expansion of an existing mine where there has been at least a 25-p.c. increase in milling capacity. The list of eligible assets is the same as for new mines except that "social capital" does not qualify.

Taxpayers operating mines, oil wells, gas wells and wells for extracting potash by the solution method have been allowed a depletion allowance, usually computed as a percentage of profits (after deduction of capital cost allowances, exploration and drilling expenses and certain interest expenses) derived from mineral, oil or gas production. This allowance is in addition to capital cost allowances on buildings, machinery and similar depreciable assets



used by the taxpayer and the deduction of his exploration and drilling expenses. This will continue until the end of 1976 after which a taxpayer will be able to deduct depletion only if it has been "earned" by exploration. For every \$3 of eligible expenditures, a taxpayer will earn the right to deduct \$1 of depletion. Eligible expenditures made after Nov. 7, 1969 can be accumulated for the purpose of calculating earned depletion for 1977 and subsequent years.

Taxpayers operating timber limits receive an annual cost allowance which is a rateable proportion of the amount invested in the limit and is based on the amount of timber cut in the year.

In computing taxable income, corporations, with certain exceptions, may deduct dividends received from other Canadian taxable corporations and also from certain non-resident affiliates. Business losses may be carried back one year or forward five years and deducted in computing taxable income. Corporations may also deduct donations to charitable organizations up to a maximum of 20 p.c. of their income.

The general rates of tax payable by corporations on their taxable income are as follows: 1972, 50 p.c.; 1973, 49 p.c.; 1974, 48 p.c.; 1975, 47 p.c.; 1976 and subsequent years 46 p.c. These rates of tax are reduced by 10 percentage points on income earned in a province. This "provincial abatement" is provided to make room for provincial income taxes. At the present time, provincial rates of corporate income tax range from 10 p.c. to 13 p.c.

For profits earned in the period July 1, 1971 to Dec. 31, 1972, there is a temporary tax reduction equal to 7 p.c. of the tax otherwise payable before the 10 percentage points provincial abatement.

A "small business deduction" reduces the rate of tax on certain business income to 25 p.c. This concession is restricted to Canadian corporations which are not controlled by a non-resident corporation or by a Canadian public corporation. It applies only to income from an active business carried on in Canada and not to investment income. The maximum amount of taxable income on which the deduction may be calculated is \$50,000 in any one year. A corporation is entitled to this deduction only until it has accumulated \$400,000 of taxable income commencing with taxation years starting after 1971. The payment of taxable dividends reduces the accumulation of taxable income for purposes of this limitation. The rate of 25 p.c. referred to will not be affected by the gradual reduction in the general federal rate of corporation income tax between 1972 and 1976 but this 25-p.c. rate is reduced by the 10 percentage points provincial abatement.

A corporation that qualifies as an "investment corporation" pays tax at a rate of only 25 p.c. This rate is also reduced by the provincial abatement.

The investment income (other than dividends) of a private corporation is subject to the general rate of tax (i.e., 50 p.c. in 1972 becoming 46 p.c. in 1976 less the provincial abatement) but an amount not exceeding 25 p.c. of this income is refunded when dividends are paid to shareholders.

Dividends received by a private corporation from a Canadian corporation controlled by it are deductible in computing its taxable income (except where paid out of designated surplus or under conditions that entitle the paying corporation to a refund). Dividends received by a private corporation from portfolio investments are subject to a special 33 $\frac{1}{3}$ -p.c. tax but this is refunded when dividends are paid to shareholders.

A corporation may elect to pay a special 15-p.c. tax on its 1971 undistributed income on hand. Dividends received from this tax-paid undistributed income are not included in the income of the receiving shareholder but the amount of the dividend will reduce the adjusted cost basis of the shares for capital gains tax purposes. Dividends paid from the untaxed half of a corporation's capital gains are also excluded from the income of the recipient shareholders but with no similar reduction in the adjusted cost base of the shares for capital gains tax purposes.



Special rules are provided for the taxation of special-purpose companies such as mutual fund corporations, life insurance companies, non-resident-owned investment companies and co-operatives.

In addition to the reduction equal to 10 p.c. of taxable income earned in a province, a corporation may reduce its tax by a credit for taxes paid to foreign governments on foreign source income. This credit may not exceed the Canadian tax related to such income. A corporation may also deduct from its tax an amount equal to two thirds of a provincial tax on income from logging operations not exceeding  $6\frac{2}{3}$  p.c. of its income from logging operations in the province. (At present only Ontario, Quebec and British Columbia impose logging taxes.) Commencing in 1977, a mining corporation will be able to claim an extra federal tax abatement of 15 p.c. of its production profits in a province.

Corporations are required to pay their tax by monthly instalments throughout their taxation year. Any balance of tax remaining has to be paid by the last day of the third month following the close of the taxation year, and the return for the year must be filed by the last day of the sixth month following the close of the taxation year.

### **Taxation of Non-residents**

An individual or corporation not resident in Canada is liable for Canadian income tax on income from employment or from carrying on business in Canada and on one half of capital gains less losses on disposals of "taxable Canadian property". For this purpose taxable Canadian property includes: real property interests situated in Canada; assets used in carrying on business in Canada; interests in certain partnerships and trusts; shares in a corporation resident in Canada other than a public corporation; and shares in Canadian public corporations where the non-resident owns a 25-p.c. or greater interest. The taxation of capital gains may be restricted by the provisions in tax treaties between Canada and other countries.

The expression "carrying on business in Canada" includes producing, growing, packaging or improving any article in Canada and also soliciting orders or offering anything for sale in Canada through an agent or servant. However, this is usually modified by tax treaties so that an enterprise of the other country is taxed by Canada on its industrial and commercial profits only if it carries on business through a permanent establishment in this country. Tax treaties also provide some exemptions from tax on remuneration for services.

The taxable income of non-resident individuals derived from employment or carrying on business or from capital gains in Canada is taxed under the same schedule of rates as Canadian resident individuals.

Income earned by non-resident corporations carrying on business or from capital gains in Canada is taxed at the regular rates of corporation income tax. The distributable business earnings of a branch of a non-resident corporation are also subject to an additional tax often referred to as a branch tax. This tax applies to the branch earnings net of taxes that are not reinvested in the business in Canada. The branch tax, which is imposed at the same rate as the non-resident withholding tax on dividends referred to below, is designed to place non-resident corporations that carry on business through a branch in Canada in a comparable position to those non-residents that conduct their Canadian operations through a separate company incorporated in Canada.

Certain specific items of income paid to non-residents from sources in Canada are subject to tax withheld at the source by the Canadian payer. This non-resident withholding tax applies to interest (except interest on certain bonds and interest paid to certain exempt lenders), dividends, rents, royalties, management fees, income from a trust or estate, alimony, pension benefits (other than the old age security pension and up to \$1,290 of Canada Pension Plan or Quebec Pension Plan benefits), proceeds from deferred income plans and the taxable portion of annuities. The rate of this tax is generally 15 p.c. but

the rate on royalties from motion picture and television films is only 10 p.c. and the standard rate of 15 p.c. on dividends is reduced to 10 p.c. in the case of dividends paid by a corporation that has a degree of Canadian ownership.\*

The Income Tax Act provides that the rate of the above-mentioned non-resident withholding tax will become 25 p.c. in 1976, except for the rate on dividends paid by a corporation with a degree of Canadian ownership which will be 20 p.c. These rates may be modified by tax treaties.

Generally, non-residents who receive from sources in Canada only the kinds of income subject to the non-resident withholding tax do not file returns to Canada. However, those who receive rents on real property, timber royalties, pension benefits or proceeds from deferred income plans may elect to file returns and be taxed at personal or corporation rates as the case may be.

## Estate and Gift Taxes

The Federal Government formerly imposed an estate tax and a tax on gifts. These taxes do not apply in the case of a death occurring after 1971 or to a gift made after 1971.

## Excise Taxes

The Excise Tax Act levies a general sales tax and special excise taxes. These taxes are levied on goods imported into Canada as well as on goods produced in Canada. They are not levied on goods exported.

The general sales tax is at the rate of 12 p.c. It is levied on the manufacturer's sale price of goods produced or manufactured in Canada or on the duty-paid value of goods imported into Canada. "Duty-paid value" includes the amount of customs duties, if any. For alcoholic beverages and tobacco products the sale price for purposes of the sales tax includes excise duties levied under the Excise Act referred to below. The rate of sales tax on a long list of building materials is 11 p.c. instead of 12 p.c.

Some goods are exempt from sales tax. Drugs, electricity, fuels for lighting or heating and most foodstuffs are exempt, and also articles and materials purchased by public hospitals and certain welfare institutions. The products of farms, forests, mines and fisheries are, to a large extent, exempt as well as most equipment used in farming and fishing. Machinery and equipment used directly in production and materials consumed or expended in production are also exempt, and also equipment acquired by manufacturers or producers to prevent or reduce pollution to water, soil or air from their manufacturing operations. A number of items are exempt when purchased by municipalities. These and other exemptions are set forth in schedule to the Excise Tax Act.

The Excise Tax Act also imposes a number of special excise taxes which are in addition to the sales tax. Where these are ad valorem taxes they are levied on the same price or duty-paid value as the general sales tax. The special excise taxes levied at present are as follows:—

Cigarettes.....	3 cents per 5 cigs.
Cigars.....	17½ p.c. ad valorem
Pipe tobacco, cut tobacco, snuff.....	90 cents per lb.
Jewellery, including articles of ivory, amber, shell, precious or semi-precious stones, clocks, watches, goldsmiths' and silversmiths' products, except gold-plated or silver-plated ware for the preparation or serving of food or drink.....	10 p.c. ad valorem
Lighters.....	10 cents per lighter
Playing cards.....	20 cents per pack
Slot machines—coin, disc or token-operated games or amusement devices..	10 p.c. ad valorem
Matches.....	10 p.c. ad valorem
Tobacco, pipes, cigar and cigarette holders and cigarette rolling devices...	10 p.c. ad valorem
Toilet articles, including cosmetics, perfumes, shaving creams, antiseptics, etc.....	10 p.c. ad valorem

\* Generally, a corporation is regarded as having a degree of Canadian ownership where 25 p.c. of its equity and voting shares are owned by Canadians and or corporations controlled in Canada, or where the voting shares of the corporation are listed on a Canadian stock exchange and no more than 75 p.c. of its issued outstanding voting shares are owned by a non-resident alone or in combination with related persons.

## Wines—\*

Wines of all kinds containing not more than 7 p.c. absolute alcohol by volume.....	25 cents per gal.
Non-sparkling wines containing more than 7 p.c. absolute alcohol by volume but not more than 40 p.c. proof spirit.....	50 cents per gal.
Sparkling wines.....	\$2.50 per gal.

## Wines (additional excise taxes)—†

Wines of all kinds containing not more than 7 p.c. of absolute alcohol by volume.....	2½ cents per gal.
Wines of all kinds containing more than 7 p.c. of absolute alcohol by volume.....	5 cents per gal.

Insurance premiums paid to British or foreign companies not authorized to transact business in Canada or to non-resident agents of authorized British or foreign companies.....	10 p.c. of net premium for property surety, fidelity and liability insurance. (Most other kinds of insurance are exempt.)
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All the foregoing items, except insurance premiums, are also subject to the general sales tax of 12 p.c. Cigarettes, cigars and tobacco are subject to additional taxes under the Excise Act (referred to as excise duties).

## Excise Duties

The Excise Act levies taxes (referred to as excise duties) upon alcohol, alcoholic beverages (other than wines) and tobacco products. These duties are not levied on imports but the customs tariff applies special duties to these products equivalent to the excise duties levied on the products manufactured in Canada. Exported goods are not subject to excise duties.

*Spirits.*—The duties are on a proof gallon basis. These duties do not apply to denatured alcohol intended for use in the arts and industries, or for fuel, light or power, or any mechanical purposes. The various duties are as follows:—

On every gallon of the strength of proof distilled in Canada.....	\$14.25
On every gallon of the strength of proof used in manufacture of—	
Medicines, extracts, pharmaceutical preparations, etc.....	\$1.50 per gal.
Approved chemical compositions.....	15 cents per gal.
Spirits sold to a druggist and used in the preparation of prescriptions.....	\$1.50 per gal.
Imported spirits when taken into a bonded manufactory in addition to other duties.....	30 cents per gal.

*Canadian Brandy.*—Canadian brandy (a spirit distilled exclusively from juices of native fruits without the addition of sweetening materials) is subject to a duty of \$12.25 per proof gallon.

*Beer.*—All beer or other malt liquor is subject to a duty of 42 cents per gallon.

*Tobacco, Cigars and Cigarettes.*—Excise duties are imposed on these products in addition to the special excise taxes which have already been described. The rates of excise duty are as follows:—

On manufactured tobacco of all descriptions, except cigarettes.....	35 cents per lb.
Cigarettes weighing not more than three lb. per thousand (nearly all of the cigarettes used in Canada are of this type).....	\$4 per thousand
Cigarettes weighing more than three lb. per thousand.....	\$5 per thousand
Cigars.....	\$2 per thousand
Canadian raw leaf tobacco when sold for consumption.....	10 cents per lb.

\* These taxes apply only to wines manufactured in Canada. The customs tariff on wines includes a levy on imported wines to correspond to the taxes on domestic production.

† These taxes apply to both domestic and imported wines.

## Total Taxes on Tobacco Products

The aggregate of the taxes imposed on tobacco products under the Excise Tax Act and the duties imposed under the Excise Act is as follows:—

Cigarettes.....	\$10 per thousand (20 cents per pack of 20 cigarettes) plus the 12-p.c. sales tax on the manufacturer's sale price.
Pipe and cut tobacco.....	\$1.25 per lb. plus the 12-p.c. sales tax on the manufacturer's sale price.
Cigars.....	\$2 per thousand plus the 17½-p.c. special excise tax and the 12-p.c. sales tax on the manufacturer's sale price.

## Customs Duties\*

Most goods imported into Canada are subject to customs duties at various rates as provided by tariff schedules. Customs duties which once were the chief source of revenue for the country have declined in importance as a source of revenue to the point where they now provide less than 10 p.c. of the total. Quite apart from its revenue aspects, however, the tariff still occupies an important place as an instrument of economic policy.

The Canadian Tariff consists mainly of three sets of rates, namely, British Preferential, Most-Favoured-Nation and General. The British Preferential rates are, with some exceptions, the lowest rates. They are applied to imported dutiable commodities shipped directly to Canada from countries within the British Commonwealth. Special rates lower than the ordinary preferential duty are applied on certain goods imported from designated Commonwealth countries.

The Most-Favoured-Nation rates apply to goods from countries that have been accorded tariff treatment more favourable than the General Tariff but which are not entitled to the British Preferential rate. Canada has Most-Favoured-Nation arrangements with almost every country outside the Commonwealth. The most important agreement providing for the exchange of Most-Favoured-Nation treatment is the General Agreement on Tariffs and Trade.

The General Tariff applies to imports from countries not entitled to either the British Preferential or Most-Favoured-Nation treatment. Few countries are in this category and in terms of trade coverage are negligible.

In all cases where the tariff applies there are provisions for drawbacks of duty on imports of materials used in the manufacture of products later exported. The purpose of these drawbacks is to assist Canadian manufacturers to compete with foreign manufacturers of similar goods. There is a second class of drawbacks known as "home consumption" drawbacks. These apply to imported materials used in the production of specified classes of goods manufactured for home consumption.

The tariff schedules are too lengthy and complicated to be summarized here but the rates which apply on any particular item may be obtained from the Department of National Revenue which is responsible for administering the Customs Tariff.

## Subsection 2.—Provincial Taxes†

All of Canada's ten provinces impose a wide variety of taxes to raise the revenue necessary for provincial purposes. All provinces levy a tax on the income of individuals and corporations resident within their boundaries or deriving income from activities or operations carried out therein. Only the provinces of Ontario and Quebec impose special taxes on corporations in addition to income tax. All the provinces except Alberta impose a tax on property passing at death, referred to as succession duties; these provinces also impose a tax on gifts. Under the terms of the existing federal-provincial fiscal arrangements, the Federal Government makes "equalization payments" to some provinces in recognition of the fact that the potential tax yield in those provinces, measured on a per capita basis, is lower than the national per capita tax yield. For some provinces, the equalization payments constitute a very important source of revenue.

\* See also p. 1105.

† Revised (September 1971) by the provincial authorities concerned, except for certain changes resulting from federal tax reform amendments which became effective Jan. 1, 1972.



Some of the more important provincial levies are reviewed briefly on this and following pages.

### Individual Income Tax

All provinces levy a tax on the income of individuals who reside within their boundaries or who earn business income therein. An individual who is resident in a particular province on the last day of the year, and has no income for the year from a business with a permanent establishment outside the province, is taxable by the province on his world income for the year. Income earned from employment in a province by a non-resident of Canada is taxable by the province. Income earned by an individual not resident in a particular province from carrying on a business through a permanent establishment in that province is taxable by that province.

In nine of the ten provinces, the provincial taxes are computed as a percentage of federal tax. "Federal tax", on which the provinces impose their tax, is after the dividend tax credit but before any foreign tax credit or the special 3-p.c. reduction for 1972. In the Province of Quebec, provincial income tax is levied at graduated rates that progress from 10 p.c. on the first \$2,000 of taxable income to a maximum of 28 p.c. on the excess over \$60,000. The determination of taxable income for Quebec tax is based on exemptions and deductions which, with the exception of deductions for dependent children under age 18,\* are similar to those for federal tax. Quebec taxpayers who have married status for tax purposes do not pay the provincial tax unless their income exceeds \$4,000; all other Quebec taxpayers do not pay the tax unless their income exceeds \$2,000.

The following statement shows the percentage that provincial income tax liability is of federal tax for 1972:—

<i>Province</i>	<i>P.C. of Federal Tax</i>	<i>Province</i>	<i>P.C. of Federal Tax</i>
Newfoundland.....	36	Ontario.....	29.585
Prince Edward Island.....	36	Manitoba.....	42.5
Nova Scotia.....	38.5	Saskatchewan.....	37
New Brunswick.....	41.5	Alberta.....	36
Quebec—not directly related to federal tax but is approximately 58 p.c. of federal tax		British Columbia.....	30.5

All provinces except Quebec have signed agreements for the collection of their individual income tax by the Federal Government.

### Corporate Income Tax

All provinces levy a tax on the taxable income of corporations derived from activities carried out within their boundaries. In all provinces except Ontario and Quebec, the provincial tax imposed on taxable income in the province is determined on the same basis as for federal income tax. In Ontario and Quebec, the determination of taxable income for purposes of provincial tax follows closely the federal rules. Six of the ten provinces levy corporate income taxes at rates in excess of the 10-p.c. abatement allowed by the Federal Government. The rate that applies in Saskatchewan and Alberta is 11 p.c., in Ontario and Quebec, 12 p.c., and in Newfoundland and Manitoba, 13 p.c. All provinces except Ontario and Quebec have signed agreements for the collection of the corporate income taxes by the Federal Government.

### Taxes on Alcoholic Beverages and Tobacco

Generally speaking, the sale of spirits in all provinces is made through provincial agencies operating as boards or commissions which exercise monopolistic control over alcoholic beverages. The provincial mark-up over the manufacturer's price (usually on top of the government established price) is the effective means of taxation. Beer and wine

\* Quebec has a family allowance program which supplements the federal program; it provides for half-yearly allowances that range from \$15 for one child to \$142.50 for six, and an extra \$35 for each child after the sixth. The Quebec program is in lieu of exemptions for provincial income tax purposes for children eligible for family allowances. (See also p. 345.)

may be sold by retailers or government stores, depending on the province, but in all cases these sales contribute to provincial revenues. The Province of Prince Edward Island imposes a tax of 10 p.c. on all beer, wine and spirits sold at retail, collected under authority of the Health Tax Act, and in Newfoundland a tax of 7 p.c. is imposed at retail level.

All provinces impose special retail taxes on the sale of tobacco products. The rates of tax on cigarettes are as follows: Newfoundland,  $\frac{1}{2}$  cent per cigarette; Prince Edward Island, Nova Scotia, New Brunswick, Quebec, Ontario and Manitoba,  $\frac{2}{5}$ ths cent per cigarette; and Saskatchewan, Alberta and British Columbia,  $\frac{2}{5}$ ths cent per cigarette. In addition, the provinces impose special taxes on cigars and cut tobacco.

### Retail Sales Taxes

Retail sales taxes are levied on the final purchaser or user and are collected by the retailer. All provinces except Alberta levy this type of tax at rates as follows: Newfoundland and Nova Scotia, 7 p.c.; Prince Edward Island, New Brunswick and Quebec, 8 p.c.; and Ontario, Manitoba, Saskatchewan and British Columbia, 5 p.c. These direct levies apply to tangible taxable commodities sold, with varying exemptions, for consumption in the province and to a few selected services, for example: to telephone services in all provinces; in Quebec, to telecommunications, meals and hotel and motel charges; in Prince Edward Island, to laundry and dry cleaning services, to accommodations, and to repair and installations labour; in New Brunswick, to telecommunications, to meals and hotel and motel charges and to laundry and dry cleaning charges; and in Manitoba, to a broad range of services including dry cleaning, furniture repairs, motel accommodation, etc. The sales taxes do not apply to goods sold for delivery in other provinces or to exported commodities. All provinces imposing sales taxes provide comprehensive exemptions for foodstuffs and drugs; in Quebec and New Brunswick, pharmaceutical products are exempt only when sold on prescription. In British Columbia, a 5-p.c. levy on accommodations is made under the Hotel and Motel Room Tax Act.

### Amusement Taxes

Each of the provinces with the exception of Newfoundland, Alberta, Saskatchewan and British Columbia has a tax on admission to places of entertainment. In Quebec, this tax is payable on race course admissions only. In addition, there is generally a licence fee imposed on the operator or owner of these amusement places. The tax on admissions is within the range of 5 p.c. to 15 p.c.

### Gasoline and Diesel Fuel Oil Taxes

Each of the ten provinces imposes a tax on the purchase of gasoline by motorists and truckers. The rates vary from 15 cents per gallon in Alberta and British Columbia to 21 cents in Prince Edward Island and 25 cents in Newfoundland. The amount of tax borne by one gallon of motor vehicle fuel in each province is as follows:—

<i>Province</i>	<i>Gasoline</i>	<i>Diesel Fuel</i>	<i>Province</i>	<i>Gasoline</i>	<i>Diesel Fuel</i>
	cts.	cts.		cts.	cts.
Newfoundland.....	25	25	Ontario.....	18	24
Prince Edward Island	21	21	Manitoba.....	17	20
Nova Scotia.....	21	27	Saskatchewan.....	19	21
New Brunswick.....	20	23	Alberta.....	15	17
Quebec.....	19	25	British Columbia....	15	17

Certain qualifications apply to the above taxes, as follows: in Prince Edward Island, gasoline and diesel fuel used by primary producers—farmers, fishermen, manufacturers and processors—are exempt from tax as are also gasoline and motor fuel used by owners or operators of ski-tows, and that used by consumers engaged in the construction of the Northumberland Strait Crossing; in Quebec and Ontario, some relief from taxation is given where gasoline or fuel oil is used for farming, manufacturing, commercial fishing and in stationary engines; in Manitoba, exemptions or refunds are allowed on fuel used in operating

agricultural machinery, farm trucks and municipal fire apparatus, and in trapping, fishing and prospecting; in Saskatchewan, gasoline and diesel fuel used by farmers in farm machinery and trucks are exempt from tax; in Alberta, tax on fuel for domestic heating is three cents less than shown, gasoline and diesel fuel used in aircraft, motor boats, snowmobiles and off-highway internal combustion engines are taxed at three cents per gallon and exemption is allowed for other uses, including farm trucks and machinery; and in British Columbia the net tax rate (after refund) on gasoline used in logging trucks off highway, in certain power units of motor vehicles for stationary industrial use and in vehicles used by certain handicapped persons, and on motor fuels coloured purple for certain off-highway use (including marine) and on aviation fuels is three cents per gallon, on motor fuels coloured purple used by bona fide farmers and commercial fishermen the rate is one cent per gallon, and on fuel oil for heating purposes is one half cent per gallon.

### **Motor Vehicle Licences and Fees**

Each province levies a fee on the annual registration of motor vehicles, which is compulsory. Upon registration, a vehicle is issued with licence plates. The rates of fee vary from province to province and, in the case of passenger cars, may be assessed on the weight of the vehicle, the wheel base, the year of manufacture, the number of cylinders of the engine, or at a flat rate. The fees for commercial motor vehicles and trailers are based on the gross weight for which the vehicle is registered, i.e., the weight of the vehicle empty plus the load it is permitted to carry. Every operator or driver of a motor vehicle is required to register periodically and pay a fee for a new driver's licence. The licences are valid for periods of from one to five years and the fees vary from \$1 to \$7 a year.

### **Taxes on Mining Operations**

All provinces except Prince Edward Island levy taxes of various kinds on mining operations. All provinces impose a tax on the income of firms engaged in mining operations in general or in specific kinds of mining operations. The Provinces of British Columbia, Alberta, Saskatchewan and Manitoba (gas, oil and potash only) impose a tax on the assessed value of minerals or a flat rate per acre of mining property. Quebec levies a tax on the economic value of ore at the pithead in excess of \$50,000, ranging between 9 and 15 p.c., depending on volume. Ontario imposes a tax on the profit on the assessed value of minerals and a flat rate per acre of mining property. Manitoba imposes a flat rate of 15 p.c. if mining income exceeds \$50,000. The British Columbia mining tax rate is 15 p.c. on net income from mining in excess of \$10,000.

### **Tax on Logging Operations**

The Provinces of Quebec, Ontario and British Columbia levy a tax on the income from logging operations of individuals, partnerships, associations or corporations engaged in this activity. In Quebec and Ontario the rate is 10 p.c. and in British Columbia 15 p.c. on net income where in excess of \$10,000 (in Quebec and British Columbia if the net income is greater than \$10,000 the whole amount is taxable with no basic exemption). In Ontario and Quebec one third and in British Columbia 20 p.c. of the tax is allowed as a deduction from provincial corporate income tax or, in Quebec, from the provincial income tax; two thirds of the provincial tax is deductible from federal income tax.

### **Business Taxes**

The Province of Quebec imposes a tax of one fifth of 1 p.c. on paid-up capital of corporations and Ontario levies a similar tax at the rate of one tenth of 1 p.c.

The Province of Quebec has a place-of-business tax, which is generally \$50 but is reduced to \$25 when the paid-up capital is less than \$25,000; in the case of loan companies, the tax is \$100 when fixed capital exceeds \$100,000.

Both Ontario and Quebec levy special taxes on certain kinds of companies such as banks, railway companies, express companies, trust companies and sleeping-car, parlour-car

and dining-car companies. In Ontario, these special taxes and the paid-up capital tax are payable over and above the corporation income tax.

The Province of Prince Edward Island charges special annual licence fees to most insurance companies, banks, acceptance companies, chain theatres and chain stores, steamship companies, telephone, telegraph and electric light companies and brokers, as well as nominal licence fees to other incorporated companies, the latter being similar to filing fees in other provinces.

### Land Transfer Taxes

Ontario levies a tax based on the price at which ownership of land is transferred; one fifth of 1 p.c. is imposed on the purchase price up to \$25,000 and two fifths of 1 p.c. on anything in excess of that amount. In Alberta, a registration fee is charged proportional to the registered value of the land; \$5 for the first \$1,000 and \$1 for each additional \$1,000 up to \$25,000 and 50 cents per \$1,000 in excess of that amount; in addition, there is an Assurance Fund fee charged on transfers of mortgages on the difference between the old registered price and the new registered price at the rate of \$2 per \$1,000 up to \$5,000 and \$1 for each additional \$1,000. British Columbia and Saskatchewan do not have a land transfer tax but have an equivalent in land title fees which are based on land values.

### Tax on Security Transfers

The Provinces of Ontario and Quebec levy a tax on the sale price of securities transferred; the rates in both provinces are:—

Shares sold, transferred or assigned valued at—

Under \$1.....	$\frac{1}{10}$ th of 1 p.c. of value
\$ 1 to \$ 5.....	$\frac{1}{2}$ cent per share
\$ 5 to \$ 25.....	1 cent per share
\$25 to \$ 50.....	2 cents per share
\$50 to \$ 75.....	3 cents per share
\$75 to \$150.....	4 cents per share
Over \$150.....	4 cents per share plus $\frac{1}{10}$ th of 1 p.c. of value in excess of \$150
Bonds and debentures.....	3 cents for every \$100 or fraction thereof of par value.

### Tax on Premium Income of Insurance Companies

All ten provinces impose a tax of 2 p.c. on the premium income of insurance companies relative to risks incurred in the province; in Alberta, this tax is imposed on the premium income after deducting dividends and refunds. Saskatchewan imposes a tax of 1 p.c. on the motor vehicle premium income of insurance companies to finance a comprehensive high school driver-training program.

### Succession Duties and Gift Taxes

All the provinces except Alberta levy succession duties. These duties are a tax upon a succession to property of a deceased person by his beneficiary. The Provinces of Ontario, Quebec and British Columbia collect their own succession duties. The four Atlantic Provinces and Manitoba and Saskatchewan reimposed succession duties with effect from Jan. 1, 1972. The duties levied by these six provinces will be collected by the Federal Government as agent under three-year collection agreements.

All the provinces except Alberta levy a gift tax. This is a tax on the total value of gifts made in the year by a living person resident in the province. It is intended primarily to protect the revenue from succession duties. For all provinces, except Quebec and Alberta, the tax will be collected by the Federal Government as agent under collection agreements. Quebec administers its own gift tax.

### Provincial Property Taxes

In unorganized (non-municipal) areas, British Columbia levies property taxes at varying rates according to class for provincial revenue. Improved, forest and tree-farm lands are taxed at 1 p.c. of assessed value; farm land at one half of 1 p.c.; wild land at 3 p.c.;



coal land at 2 p.c. (non-operating) or 7 p.c. (operating); and timber land at  $1\frac{1}{2}$  p.c. In unorganized (non-municipal) areas, Ontario levies a property tax of  $1\frac{1}{2}$  p.c. of assessed value; the minimum annual tax in respect of any land is \$6. New Brunswick levies a tax of \$1.50 per \$100 market value assessment on all land and buildings in the province and a similar tax on business occupancy, to finance education, health, welfare and justice services.

### Race Track Taxes

Ontario levies a tax on operators of race meets and on holders of winning tickets issued under the pari-mutuel system. Holders of winning tickets must pay a tax equal to 7 p.c. of the amount that would be payable to them if no percentage were deducted by the person holding the race meet. A number of other provinces levy a pari-mutuel tax on money bet in the province on horse races: in Newfoundland the rate is 11 p.c.; in Prince Edward Island  $11\frac{1}{2}$  p.c.; in Nova Scotia 11 p.c. on the first \$400,000 wagered and a reduced percentage on any additional money wagered (some of this money is refundable to the individual race tracks); in New Brunswick 11 p.c. less commission of 8 p.c.; in Manitoba 10 p.c. less commission of 15 p.c. on the first \$10,000,000 and 5 p.c. thereafter; in Alberta 5 p.c.; in Saskatchewan 10 p.c.; and in Quebec 7 p.c. on ordinary pools and 9 p.c. on special pools (quinella and daily-double). In British Columbia the tax is 12 p.c. but the province returns  $2\frac{1}{2}$  p.c. of money bet to horsemen and track operators for purses, etc.

### Miscellaneous Provincial Taxes

In Newfoundland a tax of 7 p.c. is levied on premiums paid for all types of insurance except life, accident and sickness, and marine; and a telegraph tax is levied on companies operating cables or wireless stations between Newfoundland and points outside the province at the yearly rate of \$4,000 a cable or station.

In Prince Edward Island a fire marshal's tax is levied at the rate of three fourths of 1 p.c. on premiums paid for fire insurance. In Nova Scotia a fire marshal's tax is levied at the rate of one half of 1 p.c. on premiums paid for fire insurance in the province. A tax is also levied on long-distance telephone calls at the rate of five cents on the first 50 cents with a five-cent minimum and five cents on each additional 50 cents, applying only to calls made within the province.

### Subsection 3.—Local Taxes

The municipalities in Canada levy taxes on the owners of property situated within their jurisdiction according to the assessed value of such property. Methods of determining assessed value vary widely but for taxation purposes it is generally considered to be a percentage of the actual value or, as in Nova Scotia and New Brunswick, of the actual market value. The revenues from such taxes are used generally to pay for street maintenance, schools, police and fire protection, snow removal in certain communities and other community services; in New Brunswick the municipal levy is used only for property service. Special levies are sometimes made on the basis of street frontage to pay for local improvements to the property, such as sidewalks, roads and sewers. Not only is there a widespread difference in the bases used for property tax but there is also a wide variety of rates applied, depending on the municipality.

In addition to the taxes described above, municipalities usually impose a charge for the water consumption of each property holder or a water tax based upon the rental value of the property occupied. In New Brunswick, utilities (water, domestic sewerage and treatment, and electric power) must be financed on a user-charge basis: a part of the water budget may be transferred to the general budget on a hydrant-rental basis or a percentage of the budget, depending on the size of the municipal population. There are no municipal income taxes although certain localities have retained the use of a poll tax. In Newfoundland, Quebec and Saskatchewan, municipalities are empowered to levy an amusement tax on the admission of persons to places of entertainment, although the amusement tax is generally a provincial preserve (see p. 1133). Electricity and gas are taxed at the consumer level in some western municipalities and in some New Brunswick municipalities, and coal

and fuel oil for heating purposes are chargeable in urban areas of Newfoundland. Telephone subscribers are subject to a special levy in Montreal and certain Ontario municipalities impose a tax on the gross receipt of telephone companies.

In most municipalities, a tax is levied directly on the tenant or the operator of a business. In general, business tax rates are lower than those applying to property. In New Brunswick, business assessment is equal to the value of the real property occupied for business purposes. Three bases of assessment are in use—a fraction of the property assessment, the annual rental value of the premises, or the area of the premises. Certain municipalities may charge a licence fee instead of a business tax but others charge both a licence fee and a business tax.

#### **Subsection 4.—Miscellaneous Levies**

These are not generally referred to as taxes but they are similar to taxes in many ways.

#### **Unemployment Insurance**

A national program of unemployment insurance operates in Canada. Amendments in 1971 made substantial changes. The program now provides benefits to qualified persons who are temporarily without work including persons unable to work because of sickness, disability or pregnancy. The program is administered by a federal commission appointed for this purpose. It is generally financed by contributions from both employees and employers. But when the national unemployment rate exceeds 4 p.c., or in certain circumstances when the regional unemployment rate exceeds the national unemployment rate, the Federal Government bears costs arising on these accounts. The amount of an employee's contribution is calculated weekly at a rate of 0.9 p.c. of earnings to a maximum of \$1.35 per week. The employer's rate of contribution in respect of an employee varies according to the "risk of lay-off factor" which varies according to the type of industry of the employer. Both the employee's and the employer's contribution rate may be scaled down if the employer provides his employees with a sickness and disability insurance plan meeting specific standards. Furthermore, a reduced scale of contributions operates in respect of groups of employees which have just been brought into the unemployment insurance plan for the first time in 1972 under the new legislation. The reduced scale of contributions applies for 1972, 1973 and 1974, during which the rates are respectively 40 p.c., 60 p.c. and 80 p.c. of the contribution otherwise payable. The rates of contributions, together with statistics on the operation of the program, are given at pp. 859-864.

#### **Workmen's Compensation**

Legislation in force in all provinces provides compensation for personal injury suffered by workmen as a result of industrial accidents. In general, these provincial statutes establish an accident fund administered by a Board to which employers are required to contribute at a rate proportional with the hazards of the industry. See also pp. 830-831.

#### **Hospital Insurance**

A hospital insurance plan is in operation in each of the ten provinces. In all provinces but Quebec, the program is a joint federal-provincial undertaking where approximately half of the cost of hospitalization for patients who are participants under the plan is met by the Federal Government and the remainder by the province. In Quebec the program is entirely a provincial undertaking. The share of cost normally carried by the Federal Government in the other provinces has been assumed by the Province of Quebec in exchange for fiscal compensation by way of a larger occupation of the field of personal income tax. Some provinces finance their share of the cost of the program by taxes and other provinces require the deduction of a monthly premium from the wages of their residents as a contribution or premium for the plan. In such provinces non-salaried people must also pay the premium directly if they wish to be covered by the plan. In some other provinces the proceeds of a retail sales tax are earmarked in whole or in part for the support of the hospital plan. See also pp. 291-294.

### Canada and Quebec Pension Plans

In 1966, the Canada Pension Plan, a compulsory government-operated pension program, was introduced whereby each contributor builds up a right to a graduated pension, the amount of which is related to his earnings up to a certain level. This graduated benefit supplements the universal old age security pension which is paid out of tax revenues. It operates throughout the country except in the Province of Quebec where a similar pension plan is operated by the government of the province. The maximum amount contributed by an employee in 1972 is \$88.20; the employee's contribution is matched by a contribution by his employer. Both plans have disability and survivor benefits. They are described at pp. 338-342.

### Medicare

A national medical care plan involving the joint participation of federal and provincial governments now operates in all provinces. As in the case of hospital insurance, this program requires approximately a 50-p.c. financing contribution from each level of government. In some provinces premiums must be paid for this plan; in others, the provincial share is raised through taxation. (See also pp. 288-289.)

## Section 3.—Federal Government Finance

Subsection 1 of this Section contains financial statistics of the Federal Government prepared as far as possible in accordance with the classifications, concepts and definitions used in the preparation of provincial and municipal finance statistics. These tables differ from the information presented in Subsection 2 in that the latter has been extracted directly from the *Canada Gazette*. Detailed reports published by Statistics Canada provide reconciliations of revenue, expenditure and debt as set out in Subsections 1 and 2. The *Canada Gazette* presentation is included because there is interest in and use for information on this basis.

### Subsection 1.—Statistics Canada Statistics of Federal Government Finance

**Revenue and Expenditure.**—Table 3 shows details of gross general revenue of the Federal Government for the years ended Mar. 31, 1969 and 1970.

#### 3.—Details of Gross General Revenue of the Federal Government, Years Ended Mar. 31, 1969 and 1970

Source	1969 <sup>r</sup>	1970	Source	1969 <sup>r</sup>	1970
	\$'000	\$'000		\$'000	\$'000
Taxes—			Privileges, Licences and		
Income—			Permits—		
Corporation <sup>1</sup> .....	2,213,040	2,839,061	Natural resources.....	12,623	6,510
Individual <sup>1</sup> .....	4,334,430	5,588,121	Other.....	16,300	20,955
On certain payments and			Sales and services.....	235,074	375,475
credits to non-residents...	205,566	248,511	Fines and penalties.....	5,568	5,361
General sales <sup>1</sup> .....	2,097,963	2,294,341	Interest and exchange		
Excise Duties and Special			fund net profit.....	497,090	609,595
Excise Taxes—			Own enterprises.....	200,253	246,921
Alcoholic beverages.....	321,041	334,849	Bullion and coinage.....	78,147	19,940
Tobacco.....	497,517	486,280	Postal service.....	363,487	430,628
Other.....	66,148	73,087	Other revenue (incl. con-		
Customs import duties.....	761,681	818,283	ditional transfers from		
Estate taxes.....	112,377	100,631	provincial governments)	11,071	19,168
Other.....	9,428	5,921			
Totals, Taxes.....	10,619,191	12,789,085	<b>Totals, Gross General</b>		
			<b>Revenue.....</b>	<b>12,038,804</b>	<b>14,523,638</b>

<sup>1</sup> Includes old age security taxes.

Table 4 gives details of the amounts paid by the Federal Government to provincial governments, territories and local governments for the year ended Mar. 31, 1970 and Table 5 gives details of gross general expenditure, by function, for the years ended Mar. 31, 1969 and 1970.

4.—Transfers by the Federal Government to Provincial Governments, Territories and Local Governments, Year Ended Mar. 31, 1970

Payee and Purpose	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	All Provinces	Y.T.	N.W.T.	Canada
	\$ '000	\$ '000	\$ '000	\$ '000	\$ '000	\$ '000	\$ '000	\$ '000	\$ '000	\$ '000	\$ '000	\$ '000	\$ '000	\$ '000
<b>Provincial Governments and Territories</b>														
<b>Unconditional Transfers—</b>														
Statutory subsidies.....	9,656	657	2,132	1,745	4,023	4,624	2,132	2,144	3,005	1,673	31,794	—	—	31,794
Federal-provincial fiscal arrangements.....	84,046	17,140	88,142	80,565	351,622	26,818	41,768	14,351	7,507	—	712,259	6,662	10,319	729,240
Compensation due to withdrawal from joint programs.....	—	—	—	—	164,520	—	—	—	—	—	164,520	—	—	164,520
Share of income tax on public utilities.....	934	237	1,824	131	3,176	8,795	1,008	31	7,038	477	23,651	148	48	23,857
Grants in lieu of taxes on federal property (municipal purposes).....	—	—	—	1,749	—	—	—	—	—	375	2,124	—	—	2,124
<b>Totals, Unconditional Transfers.....</b>	<b>94,636</b>	<b>18,034</b>	<b>92,098</b>	<b>84,490</b>	<b>523,341</b>	<b>40,237</b>	<b>44,908</b>	<b>16,526</b>	<b>17,553</b>	<b>2,525</b>	<b>934,348</b>	<b>6,810</b>	<b>10,367</b>	<b>951,525</b>
<b>Conditional Transfers—</b>														
General government services, other.....	—	—	40	29	—	21	—	—	—	—	90	—	—	90
Protection of Persons and Property—	73	19	131	31	857	1,019	542	126	253	332	3,383	—	17	3,400
Emergency Measures Organization—	—	—	—	—	—	—	—	—	—	—	—	19	90	109
Transportation and Communications—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Air.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Road—	6,730	70	6,707	1,977	3,105	4,500	654	314	1,129	1,588	26,774	—	—	26,774
Trans-Canada Highway.....	346	—	—	594	5,200	445	—	—	—	1,588	346	—	—	346
Roads leading to resources.....	—	—	43	—	—	—	—	—	—	—	7,771	—	—	7,771
Railway grade crossing fund.....	4,165	584	2,267	1,108	5,200	445	475	211	803	—	8,124	—	—	8,124
Trunk highway program.....	2,396	424	2,000	2,000	1,211	—	—	—	—	—	8,031	—	—	8,031
Other.....	13,637	1,078	11,017	5,679	9,516	4,945	1,129	525	1,932	1,588	51,046	—	—	51,046
<b>Totals, Road.....</b>	<b>13,637</b>	<b>1,078</b>	<b>11,017</b>	<b>5,679</b>	<b>9,516</b>	<b>4,945</b>	<b>1,129</b>	<b>525</b>	<b>1,932</b>	<b>1,588</b>	<b>51,046</b>	<b>—</b>	<b>—</b>	<b>51,046</b>
<b>Totals, Transportation and Communications.....</b>	<b>13,637</b>	<b>1,078</b>	<b>11,017</b>	<b>5,679</b>	<b>9,516</b>	<b>4,945</b>	<b>1,129</b>	<b>525</b>	<b>1,932</b>	<b>1,588</b>	<b>51,046</b>	<b>19</b>	<b>90</b>	<b>51,155</b>
<b>Health—</b>														
Hospital Care—	21,046	4,049	32,276	25,063	—	320,852	40,391	42,536	67,287	80,547	634,047	558	1,305	635,910
Hospital insurance and diagnostic services.....	901	227	1,369	3,184	19,580	7,598	2,411	2,208	1,499	4,781	43,758	235	173	44,166
Hospital construction.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<b>Totals, Hospital Care.....</b>	<b>21,947</b>	<b>4,276</b>	<b>33,645</b>	<b>28,247</b>	<b>19,580</b>	<b>328,450</b>	<b>42,802</b>	<b>44,744</b>	<b>68,786</b>	<b>85,328</b>	<b>677,805</b>	<b>793</b>	<b>1,478</b>	<b>680,076</b>
<b>General Health—</b>														
Extension of training facilities and resources.....	—	21	132	66	150	121	—	—	—	—	271	—	—	271
Professional training.....	53	—	—	—	—	690	148	98	225	173	1,606	—	—	1,606
<b>Totals, General Health.....</b>	<b>53</b>	<b>21</b>	<b>132</b>	<b>66</b>	<b>150</b>	<b>811</b>	<b>148</b>	<b>98</b>	<b>225</b>	<b>173</b>	<b>1,877</b>	<b>—</b>	<b>—</b>	<b>1,877</b>



4.—Transfers by the Federal Government to Provincial Governments, Territories and Local Governments, Year Ended Mar. 31, 1970

continued

Payee and Purpose	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	All Provinces	Y.T.	N.W.T.	Canada
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Public Health—														
General public health.....	386	127	465	394	262	4,813	582	641	862	1,173	9,705	—	77	9,782
Tuberculosis control.....	118	13	40	44	127	320	63	86	50	112	4,973	12	—	4,985
Mental health.....	148	82	245	208	44	2,020	380	399	457	556	4,524	24	—	4,548
Cancer control.....	8	14	52	46	—	458	—	—	83	131	798	—	—	798
Child and maternal health.....	22	11	44	51	325	38	—	—	107	47	645	—	—	645
Public health research.....	92	52	202	38	916	988	404	390	215	3,942	3,942	—	—	3,942
Water and sewerage systems.....	1,637	142	208	1,797	—	—	—	—	—	645	3,784	—	130	3,914
Totals, Public Health.....	2,406	441	1,256	2,578	1,630	8,638	1,429	1,480	1,820	2,603	24,371	36	207	24,614
Medical, Dental and Allied Services—														
Health resources fund.....	71	281	3,202	803	6,036	19,440	15	2,467	1,301	767	34,383	—	—	34,383
Medical rehabilitation and crippled children	21	5	94	62	77	121	158	59	67	183	807	—	—	807
Medical Care Act.....	9,481	—	13,709	—	—	64,965	17,790	17,689	21,204	36,116	180,954	—	—	180,954
Totals, Health.....	33,979	5,024	51,998	31,756	27,473	422,425	62,342	66,537	93,403	125,260	920,197	829	1,685	922,711
Social Welfare—														
Old age assistance.....	—8	—	190	222	—63	—26	151	—13	—24	268	697	1	10	708
Blind persons allowances.....	262	38	370	314	—1	136	174	51	192	283	1,829	3	20	1,852
Disabled persons allowances.....	—	35	586	1,167	—2	2,681	1,704	735	1,065	1,358	9,396	2	15	9,413
Canada Assistance Plan.....	20,289	3,293	15,246	11,795	—	132,257	19,200	17,233	31,441	43,086	293,900	240	120	294,260
Other.....	99	20	34	16	70	274	95	45	74	88	815	15	2,024	2,854
Totals, Social Welfare.....	20,709	3,386	16,426	13,514	4	135,322	21,384	18,051	32,748	45,093	306,637	261	2,189	309,087
Recreational and Cultural Services—														
Parks.....	—	—	—	—	—	—	—	—	—	—	—	44	22	66
Fitness and amateur sport.....	49	35	57	52	401	240	62	62	78	91	1,127	35	36	1,198
Totals, Recreational and Cultural Services.....	49	35	57	52	401	240	62	62	78	91	1,127	79	58	1,264
Education—														
Indian and Eskimo schools.....	—	—	—	—	—	—	—	—	—	695	695	—	6,320	7,015
Universities, Colleges and other Schools.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Capital assistance in providing training facilities (Adult Occupational Training Act).....	—	1,109	8,589	9,687	38,314	16,179	1,910	7,106	2,267	3,198	88,359	—	—	88,359
Technical and vocational training.....	—	—	39	—	1,151	36	—	—	—	—	1,236	—	—	1,236
Post-secondary education.....	4,430	962	12,477	5,665	91,267	105,014	12,918	15,675	40,040	12,985	301,433	—	—	301,433
Totals, Universities, Colleges and other Schools.....	4,430	2,071	21,105	15,352	130,762	121,229	14,828	22,781	42,307	16,183	391,018	—	—	391,048



# 4. Transfers by the Federal Government to Provincial Governments, Territories and Local Governments, Year Ended Mar. 31, 1970

—continued—

Payee and Purpose	Nfld.	P. E. I.	N. S.	N. B.	Que.	Ont.	Man.	Sask.	Alta.	B. C.	All Provinces	Y. T.	N. W. T.	Canada
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Housing (slum clearance, urban renewal, etc.).....	275	—	—	—	—	—	—	—	—	—	275	—	—	275
Immigration and citizenship.....	—	2	8	6	25	20	14	9	12	13	109	—	—	111
Other.....	—	—	1,506	2,658	—	—	—	—	—	—	4,164	—	—	4,164
<b>Totals, Conditional Transfers.....</b>	<b>27,669</b>	<b>20,196</b>	<b>109,512</b>	<b>80,351</b>	<b>184,937</b>	<b>695,376</b>	<b>106,609</b>	<b>111,340</b>	<b>174,522</b>	<b>191,883</b>	<b>1,752,398</b>	<b>1,188</b>	<b>14,788</b>	<b>1,768,374</b>
<b>Totals, Transfers to Provincial Governments and Territories.....</b>	<b>172,305</b>	<b>38,230</b>	<b>201,610</b>	<b>164,844</b>	<b>708,278</b>	<b>735,613</b>	<b>151,517</b>	<b>127,866</b>	<b>192,075</b>	<b>194,408</b>	<b>2,686,746</b>	<b>7,998</b>	<b>25,155</b>	<b>2,719,899</b>
<b>Local Governments</b>														
<b>Unconditional Transfers—</b>														
Grants in lieu of taxes on federal property.....	242	189	3,446	—	9,582	23,047	3,362	1,338	2,806	3,893	47,905	94	247	48,246
Special grants.....	—	—	—	700	—	—	—	—	—	—	700	—	—	700
<b>Totals, Unconditional Transfers.....</b>	<b>242</b>	<b>189</b>	<b>3,446</b>	<b>700</b>	<b>9,582</b>	<b>23,047</b>	<b>3,362</b>	<b>1,338</b>	<b>2,806</b>	<b>3,893</b>	<b>48,605</b>	<b>94</b>	<b>247</b>	<b>48,946</b>
<b>Conditional Transfers—</b>														
Transportation and Communications—														
Air.....	—	—	11	27	278	64	126	244	72	364	1,186	—	—	1,186
Road.....	1,331	—	—	—	341	5,731	8	326	1,185	77	8,999	41	—	9,040
Other.....	—	—	—	—	—	25	—	—	—	—	25	—	—	25
Health—														
Public health (sewage treatment projects).....	—	27	39	66	1,479	3,724	136	60	190	471	6,192	—	—	6,192
Social Welfare—														
Labour (1967-68 and previous municipal winter works incentive programs).....	—	7	1	—	28	342	—	—	—	—	378	—	—	378
Recreational and cultural services.....	—	—	—	—	—	—	589	—	—	—	589	—	—	589
Education—														
Schools operated by local authorities.....	—	—	95	720	275	410	514	1,374	1,346	—	4,734	—	—	4,734
Natural Resources and Primary Industries—														
Land: settlement and agriculture.....	—	—	—	—	—	50	—	—	—	—	50	—	—	50
Housing (slum clearance, urban renewal, etc.).....	749	—	3,023	3,645	3,694	12,758	770	41	383	1,099	26,162	—	—	26,162
<b>Totals, Conditional Transfers.....</b>	<b>2,080</b>	<b>34</b>	<b>3,169</b>	<b>4,458</b>	<b>6,095</b>	<b>23,104</b>	<b>2,143</b>	<b>2,045</b>	<b>3,176</b>	<b>2,011</b>	<b>48,315</b>	<b>41</b>	<b>—</b>	<b>48,356</b>
<b>Totals, Transfers to Local Governments.....</b>	<b>2,222</b>	<b>223</b>	<b>6,615</b>	<b>5,158</b>	<b>15,677</b>	<b>46,151</b>	<b>5,505</b>	<b>3,353</b>	<b>5,982</b>	<b>5,904</b>	<b>96,920</b>	<b>135</b>	<b>247</b>	<b>97,302</b>
<b>Grand Totals.....</b>	<b>174,627</b>	<b>38,453</b>	<b>208,225</b>	<b>170,002</b>	<b>723,955</b>	<b>781,764</b>	<b>157,022</b>	<b>131,249</b>	<b>198,057</b>	<b>200,312</b>	<b>2,783,666</b>	<b>8,133</b>	<b>25,402</b>	<b>2,817,201</b>

**5.—Details of Gross General Expenditure of the Federal Government, Years Ended  
Mar. 31, 1969 and 1970**

Function	1969 <sup>a</sup>	1970
	\$'000	\$'000
<b>General Government Services</b> .....	<b>688,033</b>	<b>735,928</b>
Executive and administrative.....	612,972	661,661
Legislative.....	34,578	26,048
Research, planning and statistics.....	33,577	37,796
Other.....	6,906	10,423
<b>Protection of Persons and Property</b> .....	<b>245,088</b>	<b>274,491</b>
Law enforcement.....	18,517	21,157
Corrections.....	61,221	67,185
Police protection.....	135,647	151,783
Emergency measures.....	7,275	6,356
Other.....	22,428	28,010
<b>Transportation and Communications</b> .....	<b>592,765</b>	<b>594,876</b>
Air.....	117,345	136,500
Road.....	111,511	93,416
Rail.....	116,734	107,396
Water.....	171,640	178,129
Telecommunications.....	59,682	59,590
Other.....	15,853	19,845
<b>Health</b> .....	<b>750,831</b>	<b>1,036,798</b>
Hospital care.....	597,745	705,723
General health.....	6,703	33,728
Public health.....	56,475	59,480
Medical, dental and allied services.....	56,942	56,913
Medical care.....	32,966	180,954
<b>Social Welfare</b> .....	<b>2,852,144</b>	<b>3,165,407</b>
Old Age Security Fund pensions.....	1,541,320	1,730,535
Old age assistance.....	3,370	708
Aid to the blind.....	2,126	2,421
Aid to the disabled.....	10,523	9,554
Aid to the unemployed and unemployable.....	128,714	145,274
Employment services.....	79,282	137,024
Family allowances.....	616,111	618,104
Labour.....	6,467	10,278
Winter work projects.....	21,514	—
Adult training and retraining.....	109,959	133,486
Canada Assistance Plan.....	257,855	294,260
Other.....	74,903	83,763
<b>Recreational and Cultural Services</b> .....	<b>86,060</b>	<b>103,283</b>
Archives, art galleries, museums, libraries.....	28,859	25,141
Parks.....	29,025	36,859
Other.....	28,176	41,283
<b>Education</b> .....	<b>592,495</b>	<b>638,970</b>
Indian and Eskimo schools.....	88,127	103,849
Universities, colleges and other schools.....	402,550	408,780
Purchased manpower training services.....	81,665	115,152
Other.....	20,153	11,189
<b>Natural Resources and Primary Industries</b> .....	<b>693,656</b>	<b>911,459</b>
Fish and game.....	83,132	76,869
Forests.....	24,392	24,171
Lands: settlement and agriculture.....	423,954	632,418
Minerals and mines.....	64,448	65,691
Water resources.....	26,799	30,086
Other.....	70,931	82,224
<b>Trade and Industrial Development</b> .....	<b>195,885</b>	<b>217,196</b>
<b>National Capital Region Planning and Development</b> .....	<b>19,928</b>	<b>17,170</b>
<b>Defence Services</b> .....	<b>1,796,994</b>	<b>1,814,664</b>
<b>Veterans' Pensions and Other Benefits</b> .....	<b>427,897</b>	<b>424,258</b>
<b>Debt Charges (excluding retirements)</b> .....	<b>1,486,951</b>	<b>1,725,237</b>
Commission on sale of securities and management charges.....	27,064	31,933
Amortization of discount on securities sold.....	10,409	9,085
Interest.....	1,449,478	1,684,219
<b>Own Enterprises</b> .....	<b>224,995</b>	<b>246,003</b>



**5.—Details of Gross General Expenditure of the Federal Government, Years Ended  
Mar. 31, 1969 and 1970—concluded**

Function	1969 <sup>a</sup>	1970
	\$'000	\$'000
<b>International Co-operation and Assistance</b> .....	<b>119,214</b>	<b>180,650</b>
<b>Other Expenditures</b> .....	<b>921,171</b>	<b>998,581</b>
Citizenship and immigration.....	33,475	28,901
External affairs.....	61,164	71,129
Postal services.....	430,608	463,172
Royal Canadian Mint.....	4,379	—
Housing research and slum clearance.....	30,022	38,040
Other.....	361,523	397,339
<b>Unconditional Transfers<sup>1</sup></b> .....	<b>927,873</b>	<b>1,000,471</b>
To Provincial Governments.....	880,245	951,528
Statutory subsidies.....	31,744	31,794
Federal-provincial fiscal arrangements.....	639,272	729,240
Compensation due to withdrawal from joint programs.....	186,985	164,520
Share of income tax on power utilities.....	20,984	23,547
Grants in lieu of taxes on federal property (municipal purposes).....	1,320	2,124
To Local Governments.....	47,628	48,946
Grants in lieu of taxes.....	46,017	48,246
Special grants.....	1,611	700
<b>Totals, Gross General Expenditure</b> .....	<b>12,651,980</b>	<b>14,085,442</b>

<sup>1</sup> Conditional transfers are classified by function. See Table 4 for details of all transfers to provincial governments, territories and local governments.

**Debt.**—In Table 6, direct debt represents total liabilities less investments held for retirement of unmatured bonded debt, and indirect debt consists of guarantees of direct debt of other authorities by the Federal Government. Table 7 gives the gross bonded debt of the Federal Government and the average interest rates and terms of issue as at Mar. 31, 1969-71, together with place of payment.

**6. Direct and Indirect Debt (less Investments Held for Retirement of Unmatured Bonded Debt) of the Federal Government as at Mar. 31, 1969 and 1970**

Nature of Debt	1969	1970
	\$'000	\$'000
<b>Direct Debt</b>		
Bonded debt.....	19,260,958	19,742,140
Less: investments held for retirement of unmatured bonded debt.....	6,378	13,817
Item 1 less item 2.....	19,254,580	19,728,323
Short-term treasury bills.....	2,840,000	2,815,000
Accounts and other payables.....	2,252,148	2,222,498
Annuity, insurance and pension accounts.....	10,520,063	11,476,457
Other liabilities.....	555,047	578,342
<b>Totals, Direct Debt (less Investments Held for Retirement of Unmatured Bonded Debt)</b> .....	<b>35,421,838</b>	<b>36,900,620</b>
<b>Indirect Debt</b>		
Guaranteed bonds.....	1,131,366	1,050,476
Guaranteed bank loans.....	753,735	1,032,305
Other Guarantees—		
Loans by lenders under Pt. IV of the National Housing Act 1954.....	21,116	22,048
Insured loans under the National Housing Act 1954.....	6,732,000	7,327,000
Insurance guarantees and long-term financing under the Export Development Act.....	332,966	328,744
<b>Totals, Indirect Debt</b> .....	<b>8,971,183</b>	<b>9,760,573</b>
<b>Totals, Direct and Indirect Debt (less Investments Held for Retirement of Unmatured Bonded Debt)</b> .....	<b>44,393,021</b>	<b>46,661,193</b>
Direct debt per capita <sup>1</sup> .....	\$ 1,682	\$ 1,726
Indirect debt per capita <sup>1</sup> .....	427	457

<sup>1</sup> Based on estimated populations of June 1, 1969 and 1970, respectively.

**7.—Gross Bonded Debt of the Federal Government, Average Interest Rate, Term of Issue and Place of Payment as at Mar. 31, 1969-71**

Item	1969	1970	1971
Bonded debt..... \$'000	19,260,958	19,742,140	21,466,156
Average interest rate..... p.c.	5.32	5.87	
Average term of issue..... yrs.	13.23 <sup>a</sup>	21.65	
Place of Payment—			
Canada..... \$'000	18,818,549	19,295,185	21,129,039
New York..... "	266,733	265,003	263,273
Federal Republic of Germany..... "	67,568	73,844	73,844
Italy..... "	108,108	108,108	—

**Subsection 2.—Public Accounts Statistics of Federal Government Finance**

The figures of Tables 8 and 10, giving details of revenue and of assets and liabilities, respectively, of the Federal Government for the fiscal years ended Mar. 31, 1969-71, and the figures of Table 9, giving details of Federal Government expenditure for the years ended Mar. 31, 1969-71, are taken from the *Canada Gazette*.

**8.—Revenue of the Federal Government, Years Ended Mar. 31, 1969-71**

Revenue	1969	1970 <sup>a</sup>	1971
	\$	\$	\$
<b>Tax Revenue—</b>			
Customs import duties (net).....	761,681,095	818,282,786	814,544,226
Excise duties.....	509,287,828	518,844,479	561,037,941
Income tax.....	5,592,037,404	6,945,593,206	7,173,161,461
Personal <sup>1</sup> .....	3,356,430,988 <sup>2</sup>	4,085,120,802 <sup>2</sup>	4,696,481,982 <sup>2</sup>
Corporation <sup>1</sup> .....	2,030,040,413	2,611,561,028	2,218,528,208
On certain payments and credits to non-residents	205,566,003	248,511,376	258,151,271
Social development tax.....	63,000,000	476,500,000	566,250,000
Sales tax (net) <sup>1</sup> .....	1,569,840,938	1,716,899,405	1,707,500,713
Estate tax, including succession duties.....	112,377,045	100,630,908	119,835,070
Other taxes.....	378,114,782	378,674,281	403,538,083
Totals, Tax Revenue.....	8,986,339,092	10,955,425,065	11,345,867,494
<b>Non-tax Revenue—</b>			
Post Office (net).....	310,625,169	354,752,869	337,570,317
Return on investments.....	695,098,892	860,031,744	1,001,969,837
Bullion and coinage.....	74,764,059	19,939,895	19,946,203
Other.....	124,308,582	130,603,659	97,697,687
Totals, Non-tax Revenue.....	1,204,796,702	1,365,328,167	1,457,184,044
<b>Grand Totals, Revenue.....</b>	<b>10,191,135,794</b>	<b>12,320,753,232</b>	<b>12,803,051,538</b>

<sup>1</sup> Excludes tax credited to the Old Age Security Fund.

<sup>2</sup> Excludes tax credited to Canada Pension Plan.

## 9.—Expenditure of the Federal Government, Years Ended Mar. 31, 1969-71

Item	1969	1970 <sup>a</sup>	1971
	\$	\$	\$
<b>Defence Expenditures</b> .....	<b>1,814,080,691</b>	<b>1,853,706,978</b>	<b>1,877,714,921</b>
National Defence.....	1,760,772,328	1,789,489,327	1,817,852,688
Supply and Services.....	23,719,368	15,717,586	14,675,233
Technological assistance to Canadian defence industry	29,588,995	48,500,065	45,187,000
<b>Non-defence Expenditures</b> .....	<b>8,953,167,946</b>	<b>10,077,582,497</b>	<b>11,304,428,615</b>
Agriculture.....	286,880,199	383,833,688	277,005,746
Communications.....	354,543,124	353,944,314	382,492,965
Consumer and Corporate Affairs.....	13,752,965	16,697,483	20,219,433
Energy, Mines and Resources.....	179,691,650	195,739,166	199,746,683
External Affairs.....	226,116,193	242,225,671	281,585,338
Finance.....	2,420,665,337	2,846,143,933	3,139,544,405
Fisheries and Forestry.....	79,045,963	76,866,896	79,831,473
Governor General and Lieutenant-Governors.....	1,039,210	1,124,040	1,152,820
Indian Affairs and Northern Development.....	266,992,760	311,434,559	355,306,017
Industry, Trade and Commerce.....	174,299,772	247,630,069	205,381,846
Justice.....	16,930,785	19,661,561	22,734,406
Labour.....	136,598,045	155,519,032	191,529,287
Legislature.....	18,586,762	22,988,752	27,235,651
Manpower and Immigration.....	416,115,015	439,510,592	570,750,039
National Defence.....	23,437	18,675	23,523
National Health and Welfare.....	1,668,740,046	1,957,028,538	2,339,602,975
National Revenue.....	119,970,863	144,583,159	158,833,608
Privy Council.....	9,269,630	11,256,175	60,042,258
Public Works.....	284,771,301	288,244,033	330,657,604
Regional Development.....	180,789,864	236,060,698	326,230,514
Secretary of State.....	522,569,488	553,497,162	707,939,869
Solicitor General.....	165,938,295	184,084,217	222,789,037
Supply and Services.....	41,982,173	65,102,975	59,971,992
Transport.....	508,060,407	510,932,897	470,426,969
Treasury Board.....	432,215,004	391,095,061	463,432,882
Veterans Affairs.....	427,579,658	422,359,151	409,961,280
<b>Grand Totals, Expenditures</b> .....	<b>10,767,248,637</b>	<b>11,931,289,475</b>	<b>13,182,143,536</b>

## 10.—Statement of Assets and Liabilities of the Government of Canada, as at Mar. 31, 1969-71

Item	1969	1970 <sup>a</sup>	1971
	\$	\$	\$
<b>Assets</b>			
<b>Current Assets—</b>			
Cash.....	884,933,108	1,054,106,938	1,595,180,664
Departmental working capital advances and revolving funds.....	188,871,332	200,962,264	215,551,369
Securities held for the securities investment account at amortized cost.....	44,426,808	97,369,756	56,931,602
Other current assets.....	52,013,769	19,937,921	35,561,916
<b>Totals, Current Assets.....</b>	<b>1,170,245,017</b>	<b>1,372,376,879</b>	<b>1,903,225,551</b>
Cash in blocked currency.....	1,913,820	4,119	4,119
Advances to the Exchange Fund Account.....	2,867,000,000	3,220,399,866	4,578,423,991
Sinking fund and other investments held for retirement of unmatured debt.....	6,377,372	13,817,571	6,875,017
Investment in special United States of America securities—Columbia River Treaty.....	90,329,161	58,041,661	25,754,161
Canada Pension Plan Investment Fund.....	2,022,947,000	2,832,734,000	3,701,275,000
Loans to and investments in Crown corporations.....	8,767,795,299	9,634,530,148	10,755,253,758
Loans to national governments.....	1,269,212,533	1,327,927,779	1,406,097,348
<b>Other Loans and Investments—</b>			
Subscriptions to capital of, and working capital advances and loans to, international organizations.....	999,123,550	1,047,038,157	1,423,916,648
Loans to provincial governments.....	270,328,269	319,649,195	359,949,199
Veterans' Land Act advances (less reserve for conditional benefits).....	421,668,258	472,078,796	492,339,217
Miscellaneous.....	423,220,118	494,817,866	583,820,455
<b>Totals, Other Loans and Investments.....</b>	<b>2,114,340,195</b>	<b>2,333,584,014</b>	<b>2,860,025,519</b>
<b>Securities held in trust.....</b>	<b>111,466,005</b>	<b>114,363,168</b>	<b>124,490,532</b>

**10.—Statement of Assets and Liabilities of the Government of Canada, as at  
Mar. 31, 1969-71—concluded**

Item	1969	1970 <sup>c</sup>	1971
	\$	\$	\$
Deferred Charges—			
Unamortized Portions of Actuarial Deficiencies—			
Canadian forces superannuation account.....	242,691,200	254,805,600	227,240,000
Public service superannuation account.....	186,486,400	283,708,400	311,196,400
Royal Canadian Mounted Police superannuation account.....	20,720,200	29,282,800	30,005,400
Unamortized loan flotation costs.....	163,458,374	182,798,793	175,143,932
Totals, Deferred Charges.....	613,356,174	750,595,593	743,585,732
Capital assets.....	1	1	1
Inactive loans and investments.....	94,824,381	94,824,381	94,824,381
Totals, Recorded Assets.....	19,129,806,958	21,753,199,180	26,199,835,110
Less: Reserve for losses on realization of assets.....	—546,384,065	—546,384,065	—546,384,065
Net recorded assets.....	18,583,422,893	21,206,815,115	25,653,451,045
Net debt.....	17,335,837,990	16,943,282,116	17,322,374,244
	35,919,260,883	38,150,097,231	42,975,825,289
<b>Liabilities</b>			
Current and Demand Liabilities—			
Outstanding treasury cheques.....	502,541,222	515,879,534	630,333,381
Accounts payable.....	470,161,879	602,615,259	582,300,567
Non-interest-bearing notes payable on demand.....	601,008,062	513,465,266	895,472,522
Matured debt outstanding.....	39,707,891	21,224,214	32,729,140
Interest due and outstanding.....	162,914,863	161,642,454	325,577,376
Interest accrued.....	399,433,074	434,022,517	495,600,944
Other current liabilities.....	43,320,591	58,361,351	61,601,666
Totals, Current and Demand Liabilities.....	2,219,087,582	2,307,210,595	3,023,615,596
Deposit and trust accounts.....	511,842,589	491,881,909	439,183,779
Annuity, Insurance and Pension Accounts—			
Government annuities.....	1,324,634,796	1,321,079,758	1,313,779,324
Canada Pension Plan account.....	2,107,758,449	2,932,287,696	3,843,577,393
Old Age Security Fund.....	620,891,563	721,397,687	728,422,342
Canadian forces superannuation account.....	3,023,616,461	3,306,389,329	3,570,638,731
Public service superannuation account.....	3,178,376,807	3,599,427,507	3,990,006,489
Miscellaneous.....	264,784,517	303,952,466	356,255,873
Totals, Annuity, Insurance and Pension Accounts.....	10,520,062,593	12,184,504,443	13,802,680,152
Undisbursed balances of appropriations to special accounts.....	235,508,025	273,398,077	266,598,006
Refundable corporation tax.....	140,806,087	38,148,275	3,064,986
Provision for estimated premium on redemption of bonds.....	12,421,176	20,301,180	18,582,473
Deferred credits and suspense accounts.....	178,575,125	197,512,523	220,943,696
Unmatured Debt—			
Bonds—			
Payable in Canada.....	18,818,549,500	19,295,185,000	21,129,039,100
Payable in New York.....	266,732,706	265,002,978	263,273,250
Payable in Federal Republic of Germany.....	67,567,500	73,844,251	73,844,251
Payable in Italy.....	108,108,000	108,108,000	—
Treasury Bills and Notes—			
Payable in Canada.....	2,840,000,000	2,895,000,000	3,735,000,000
Totals, Unmatured Debt.....	22,100,957,706	22,637,140,229	25,201,156,601
Totals, Liabilities.....	35,919,260,883	38,150,097,231	42,975,825,289

**Guaranteed Debt.**—In addition to the direct debt already dealt with, the Government of Canada has assumed certain contingent liabilities. The major categories of this indirect or contingent debt are the guarantee of insured loans under the National Housing Act and the guaranteed bonds and debentures of the Canadian National Railways. The remainder consists chiefly of guarantee of loans made by chartered banks to the Canadian Wheat Board, to farmers and to university students and of guarantees under the Export Development Act.



## 11.—Guaranteed Debt of the Government of Canada as at Mar. 31, 1970

SOURCE: *Public Accounts of Canada*

Item	Amount of Guarantee Authorized	Amount Outstanding at Mar. 31, 1970
	\$	\$
<b>Railway Securities Guaranteed as to Principal and Interest—</b>		
Canadian National 5½ p.c. due Dec. 15, 1971.....	178,443,500	178,443,500
Canadian National 3½ p.c. due Feb. 1, 1974.....	200,000,000	200,000,000
Canadian National 2½ p.c. due June 15, 1975, U.S. \$6,000,000 <sup>1</sup> .....	6,000,000	6,000,000
Canadian National 5 p.c. due May 15, 1977.....	78,001,875	78,001,875
Canadian National 4 p.c. due Feb. 1, 1981.....	300,000,000	300,000,000
Canadian National 5½ p.c. due Jan. 1, 1985.....	91,343,625	91,343,625
Canadian National 5 p.c. due Oct. 1, 1987.....	145,348,225	145,348,225
Grand Trunk Western Railroad Company.....	5,399,500	5,399,500
<b>Totals, Railway Securities.....</b>	<b>1,004,536,725</b>	<b>1,004,536,725</b>
<b>Other Outstanding Guarantees and Contingent Liabilities—</b>		
Loans made by lenders under Part IV of the National Housing Act, 1954 for home extension and improvements <sup>2</sup> .....	30,000,000	22,317,000
Insured loans made by approved lenders under the National Housing Act, 1954 <sup>3</sup> .....	15,000,000,000	8,051,000,000
Liability for insurance and guarantees under the Export Development Act.....	1,150,000,000	524,600,000
Loans made by chartered banks under the Farm Improvement Loans Act.....	199,000,000	98,700,000
Loans made by chartered banks and credit unions under the Fisheries Improvement Loans Act.....	3,500,000	2,200,000
Loans made by chartered banks under the Small Businesses Loans Act.....	37,700,000	24,100,000
Loans made by chartered banks and credit unions under the Canada Student Loans Act <sup>4</sup> .....	470,450,000	434,700,000
Loans made by chartered banks to the Canadian Wheat Board.....	450,000,000	338,032,550
Loans made by lenders under the Cape Breton Development Act.....	100,000,000	30,000,000
Loans made by lenders under the General Adjustment Assistance Program.....	100,000,000	6,823,011
<b>Totals, Guaranteed Debt.....</b>	<b>18,545,186,725</b>	<b>10,537,009,286</b>
Loans made by approved lending institutions under National Housing Act prior to 1954.....	Unstated	Indeterminate
Guarantees to owners of returns from moderate rental housing projects <sup>5</sup> .....	Unstated	Indeterminate

<sup>1</sup> Liability is subject to exchange rate in effect June 15, 1975.<sup>2</sup> As at Dec. 31, 1970.<sup>3</sup> As reported<sup>4</sup> Includes contingent liability in respect of alternative payments to non-participating province.<sup>5</sup> As at Dec.

31, 1970, funds totalling \$6,041,693 were held by the Central Mortgage and Housing Corporation for the purpose of settling claims. In 1970, rental contracts totalled \$7,734,000.

Table 12 summarizes the national debt position during the period 1962-71 as to interest and amount outstanding. Details of unmatured debt and treasury bills outstanding and information on new security issues of the Federal Government may be found in the *Public Accounts of Canada*. They are summarized by standard classification in Statistics Canada publication *Federal Government Finance, Revenue and Expenditure* (Catalogue No. 68-211).

## 12.—Summary of the Public Debt and Interest Payments Thereon, Years Ended Mar. 31, 1962-71

Year Ended Mar. 31—	Gross Debt	Net Active Assets	Net Debt	Net Debt per Capita <sup>1</sup>	Increase or Decrease in Net Debt during Year	Interest Paid on Debt	Interest Paid per Capita <sup>2</sup>
	\$	\$	\$	\$	\$	\$	\$
1962...	22,907,814,464	9,679,677,419	13,228,137,045	712.34	791,021,950	802,919,207	44.02
1963...	24,799,279,690	10,879,509,718	13,919,769,972	736.65	691,632,927	881,598,898	47.47
1964...	25,923,732,116	10,853,582,664	15,070,149,452	783.39	1,150,379,480	954,543,790	50.52
1965...	26,573,425,709	11,068,953,165	15,504,472,544	792.22	434,323,092	1,012,097,143	52.62
1966...	27,482,940,350	11,939,492,485	15,543,447,865	780.33	38,975,321	1,077,295,513	55.05
1967...	30,340,137,314	14,375,186,836	15,964,950,478	782.40	421,502,613	1,156,105,268	57.76
1968...	32,924,170,009	16,164,444,862	16,759,725,147	807.93	794,774,669	1,269,966,267	62.23
1969...	33,919,260,883	18,583,422,893	17,335,837,990	823.13	576,112,843	1,442,514,496	69.54
1970...	38,150,097,231	21,206,815,115	16,943,282,116	792.59	392,555,874	1,675,910,611	79.57
1971...	42,975,825,289	25,653,451,045	17,322,374,244	798.97	379,092,128	1,779,635,480	83.25

<sup>1</sup> Based on the official estimates of population for June 1 of the year indicated. <sup>2</sup> Based on the official estimates of population for June 1 of the year immediately preceding the one indicated.

### Subsection 3.—Revenue from Taxation

The incidence of Federal Government taxation is dealt with at pp. 1122-1131. This Subsection includes statistical data on revenue received from individual income tax, corporation tax, estate tax, excise duties and excise taxes; customs receipts constitute a single item in the *Public Accounts of Canada* and are not included here.

#### Individual and Corporation Income Tax

Statistics of income tax collections are gathered at the time the payments are made and are therefore up to date. Over 85 p.c. of individual taxpayers are wage or salary earners who have almost the whole of their tax liability deducted at the source by their employers. All other taxpayers are required to pay most of their estimated tax during the taxation year. Thus, the greater part of the tax is collected during the same year in which the related income is earned and only a limited residue remains to be collected when the returns are filed. The collections for a given fiscal year include employer remittances of tax deductions and Canada Pension Plan contributions and instalments for twelve months, embracing portions of two taxation years, and a mixture of year-end payments for the first of these years and for the preceding year; they cannot therefore be closely related to the statistics for a given taxation year. As little information about a taxpayer is received when the payment is made and as a single cheque from one employer may frequently cover the tax payment of hundreds of employees, the payments cannot be statistically related to taxpayers by occupation or income. Descriptive classifications of taxpayers are available only from tax returns but collection statistics, if interpreted with the current tax structure and the above factors in mind, indicate the trend of income in advance of the final compilation of statistics.

The statistics given in Table 13 pertain to revenue collections by the Department of National Revenue, Taxation. The collections are for fiscal years ended Mar. 31.

**13.—Revenue Collected by the Department of National Revenue, Taxation,  
Years Ended Mar. 31, 1962-71**

NOTE.—All collection figures in this table are net of refunds.

Year Ended Mar. 31—	Income Tax <sup>1</sup>				Estate Tax	Total Collections
	Individual <sup>2</sup>	Corporation	Special Refundable Tax	Total		
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
1962 .....	2,200,573	1,303,503	...	3,504,076	84,579	3,588,655
1963 .....	2,399,882	1,362,656	...	3,762,538	87,143	3,849,681
1964 .....	2,579,084	1,472,175	...	4,051,259	90,671	4,141,930
1965 .....	3,047,590	1,804,507	...	4,852,097	88,626	4,940,723
1966 .....	3,336,658	1,891,085	...	5,227,743	108,352	5,336,035
1967 .....	4,538,597	1,874,903	196,157	6,609,657	101,106	6,710,763
1968 .....	5,471,589	1,987,547	39,111	7,498,247	102,192	7,600,439
1969 .....	6,323,872	2,416,851	-94,462	8,646,261	112,377	8,758,638
1970 .....	7,910,444	3,080,001	-102,658	10,887,787	100,631	10,988,418
1971 .....	9,097,603	2,653,286	-35,083	11,715,806	119,835	11,835,641

<sup>1</sup> Includes old age security tax and provincial income tax collected by the Department of National Revenue, Taxation.

<sup>2</sup> Includes non-resident withholding tax; from 1966, includes Canada Pension Plan contributions by employers, employees and self-employed persons; for 1969, 1970 and 1971, includes social development tax.

**Income Tax Statistics.**—Individual income tax statistics are presented in Tables 14 to 16 on a calendar-year basis and are compiled from a sample of all returns received. Taxpayers and amounts of income and tax are shown for selected cities and by occupation and income classes. Table 17 gives statistics of corporation income tax by industry group by size of assets.

**14.—Number of Taxpayers and Amounts of Income and Tax, by Selected Cities, 1968 and 1969**

City and Province	1968			1969		
	Taxpayers	Total Income Assessed	Federal Tax Payable <sup>1</sup>	Taxpayers	Total Income Assessed	Federal Tax Payable <sup>2</sup>
	No.	\$'000,000	\$'000,000	No.	\$'000,000	\$'000,000
Brantford, Ont.....	28,122	155.6	16.4	31,773	187.1	23.2
Calgary, Alta.....	146,386	894.6	101.4	160,968	1,044.8	137.6
Dartmouth, N.S.....	20,008	106.3	10.3	21,369	125.2	14.6
Edmonton, Alta.....	174,349	1,024.5	112.5	188,225	1,195.8	153.6
Guelph, Ont.....	24,617	140.3	15.1	25,593	155.8	19.4
Halifax, N.S.....	53,137	295.6	30.8	54,347	329.5	41.0
Hamilton, Ont.....	183,844	1,155.7	129.0	191,370	1,245.1	159.8
Hull, Que.....	39,866	220.3	16.3	40,619	240.8	22.2
Kingston, Ont.....	32,172	188.9	21.1	34,181	209.8	26.9
Kitchener-Waterloo, Ont.....	75,000	433.5	47.4	81,373	501.6	63.6
London, Ont.....	93,439	555.7	62.2	100,353	636.7	82.8
Moncton, N.B.....	21,933	112.0	10.3	24,135	133.9	14.6
Montreal, Que.....	823,563	4,972.6	425.0	833,444	5,289.0	527.0
New Westminster, B.C.....	48,378	288.2	29.9	41,286	263.3	32.9
Niagara Falls, Ont.....	25,162	145.1	14.6	25,720	155.6	18.2
Oakville, Ont.....	20,944	152.9	19.4	22,225	176.4	25.5
Oshawa, Ont.....	35,386	231.7	26.2	38,416	261.7	34.2
Ottawa, Ont.....	166,444	1,056.2	124.6	175,001	1,223.6	168.0
Peterborough, Ont.....	24,760	146.1	15.2	26,591	166.9	21.0
Quebec, Que.....	127,878	737.7	58.6	132,617	814.0	76.8
Regina, Sask.....	55,170	307.1	31.8	56,503	328.7	39.3
St. Catharines, Ont.....	46,211	288.1	31.4	48,734	327.4	41.9
Saint John, N.B.....	32,374	161.9	14.9	32,172	174.6	19.6
St. John's, Nfld.....	33,669	178.9	18.1	34,279	195.9	23.3
Sarnia, Ont.....	28,153	195.9	23.0	30,211	219.5	29.3
Saskatoon, Sask.....	49,174	280.9	29.5	49,159	291.2	34.5
Sault Ste. Marie, Ont.....	28,571	173.7	18.5	30,081	191.5	22.8
Sherbrooke, Que.....	29,791	157.5	11.7	32,046	179.9	16.0
Sudbury-Copper Cliff, Ont.....	48,042	320.5	36.6	50,932	324.5	39.9
Sydney-Glace Bay, N.S.....	30,276	148.5	12.0	31,388	163.8	16.1
Thunder Bay, Ont.....	41,050	238.0	24.5	43,553	272.0	33.6
Toronto, Ont.....	956,600	6,046.8	742.4	1,005,370	6,777.4	952.7
Trois-Rivières, Que.....	21,773	114.9	8.3	21,418	122.3	10.5
Vancouver, B.C.....	335,285	2,093.8	242.8	374,670	2,462.8	328.5
Victoria, B.C.....	74,949	428.8	44.3	81,816	494.1	60.5
Windsor, Ont.....	85,328	559.2	61.4	88,771	618.7	78.0
Winnipeg, Man.....	214,341	1,184.0	123.3	224,644	1,318.0	162.0

<sup>1</sup> Includes old age security tax.

<sup>2</sup> Includes old age security and social development taxes.

### 15.—Number of Taxpayers and Amounts of Income and Tax, by Occupational Class, 1968 and 1969

Occupational Class	1968			1969		
	Taxpayers	Total Income Assessed	Federal Tax Payable <sup>1</sup>	Taxpayers	Total Income Assessed	Federal Tax Payable <sup>2</sup>
	No.	\$'000	\$'000	No.	\$'000	\$'000
Employees.....	6,015,172	34,078,474	3,322,767	6,312,038	38,171,494	4,403,596
Farmers.....	142,041	747,082	61,188	124,482	635,649	55,857
Fishermen.....	9,460	50,056	4,352	9,115	46,016	4,402
Self-employed Professionals—						
Accountants.....	4,699	79,892	13,860	5,092	91,849	17,265
Medical doctors and surgeons.....	17,688	516,151	114,925	17,940	580,145	136,746
Dentists.....	5,184	104,529	19,834	5,372	116,964	23,761
Lawyers and notaries.....	8,709	205,508	43,624	9,088	235,235	53,035
Consulting engineers and architects.....	2,409	54,701	11,191	2,442	55,217	11,386
Entertainers and artists.....	5,049	30,731	3,446	6,409	38,993	4,817
Other professionals.....	12,001	101,254	14,273	12,725	112,543	17,344
Salesmen.....	19,618	143,099	15,745	21,210	161,679	20,003
Business proprietors.....	263,512	1,697,372	175,810	273,776	1,809,082	211,497
Investors.....	192,088	1,251,451	142,878	234,766	1,522,529	191,612
Property owners.....	57,226	354,211	41,137	60,494	388,442	51,835
Pensioners.....	202,419	709,419	45,635	256,569	890,116	68,477
All others.....	9,639	37,540	3,560	12,445	55,460	5,889
<b>Totals.....</b>	<b>6,966,914</b>	<b>40,161,472</b>	<b>4,034,225</b>	<b>7,363,963</b>	<b>44,911,412</b>	<b>5,277,523</b>

<sup>1</sup> Includes old age security tax.<sup>2</sup> Includes old age security and social development taxes.

### 16.—Individual Income Tax Statistics, by Income Class, 1968 and 1969

Income Class Based on Total Income	Taxpayers		Total Income Assessed		Federal Tax Payable		Average Federal Tax	
	1968	1969	1968	1969	1968 <sup>1</sup>	1969 <sup>2</sup>	1968 <sup>1</sup>	1969 <sup>2</sup>
	No.	No.	\$'000	\$'000	\$'000	\$'000	\$	\$
Under \$1,000.....	48,490	44,802	23,855	20,606	1,709	1,592	35	26
\$ 1,000 and under \$ 2,000..	700,406	722,295	1,099,065	1,130,644	26,188	32,742	37	45
\$ 2,000   "   \$ 3,000..	881,808	895,280	2,214,207	2,247,669	99,763	122,036	113	136
\$ 3,000   "   \$ 5,000..	1,929,723	1,888,500	7,663,440	7,506,527	515,604	611,338	267	324
\$ 5,000   "   \$10,000..	2,778,210	2,985,437	19,130,819	20,985,960	1,819,171	2,352,850	655	788
\$10,000   "   \$25,000..	570,866	757,336	7,672,937	10,120,953	1,022,518	1,464,181	1,791	1,933
\$25,000   "   \$50,000..	46,835	56,987	1,548,658	1,882,843	324,610	404,682	6,931	7,101
\$50,000 or over.....	10,576	13,326	808,490	1,016,210	224,664	288,102	21,243	21,620
<b>Totals.....</b>	<b>6,966,914</b>	<b>7,363,963</b>	<b>40,161,472</b>	<b>44,911,412</b>	<b>4,034,225</b>	<b>5,277,523</b>	<b>579</b>	<b>717</b>

<sup>1</sup> Includes old age security tax.<sup>2</sup> Includes old age security and social development taxes.



17.—Corporation Net Taxable Income, by Industry Group and by Size of Total Assets, 1967-69  
(Millions of dollars)

Year and Asset Size	Agriculture, Forestry, Fishing	Mining, Quarrying, Oil Wells	Mani- facturing	Con- struction	Utilities	Wholesale Trade	Retail Trade	Finance, Insurance, Real Estate	Services	Total
<b>1967</b>										
Under 100,000.....	6.1	2.9	29.4	38.4	15.0	38.6	64.1	56.7	55.6	306.8
100,000 to 249,999.....	10.5	2.9	55.5	49.8	15.5	63.4	98.6	61.5	48.2	376.9
250,000 to 999,999.....	11.1	6.9	161.8	63.7	27.7	131.4	58.6	82.4	60.6	604.2
1,000,000 to 4,999,999.....	3.3	18.7	396.6	60.3	56.3	146.0	64.6	73.3	49.8	868.9
5,000,000 and over.....	4.0	210.5	1,367.8	51.3	411.5	152.5	170.1	461.5	30.4	2,889.9
<b>Totals, Taxable Income.....</b>	<b>35.0</b>	<b>241.9</b>	<b>2,012.1</b>	<b>263.5</b>	<b>526.0</b>	<b>531.9</b>	<b>426.3</b>	<b>735.1</b>	<b>241.6</b>	<b>5,016.7</b>
<b>1968<sup>r</sup></b>										
Under 100,000.....	6.5	4.4	28.7	42.5	14.3	41.2	67.6	61.4	59.9	326.5
100,000 to 249,999.....	11.5	2.8	56.1	53.2	17.0	66.0	77.4	71.4	54.7	410.1
250,000 to 999,999.....	14.1	8.2	181.2	68.7	29.0	144.0	65.9	100.8	67.1	679.0
1,000,000 to 4,999,999.....	3.7	13.6	411.6	58.1	54.7	159.3	48.4	77.5	45.6	872.5
5,000,000 and over.....	11.5	204.6	1,888.6	81.6	419.8	194.3	209.6	538.8	52.3	3,601.1
<b>Totals, Taxable Income.....</b>	<b>47.3</b>	<b>233.6</b>	<b>2,566.2</b>	<b>304.1</b>	<b>534.8</b>	<b>604.8</b>	<b>468.9</b>	<b>849.9</b>	<b>279.6</b>	<b>5,889.2</b>
<b>1969</b>										
Under 100,000.....	7.5	2.9	29.9	43.8	14.3	44.1	73.0	68.0	66.9	350.4
100,000 to 249,999.....	11.8	3.3	59.6	56.6	18.8	72.6	83.5	85.8	61.4	453.4
250,000 to 999,999.....	17.6	8.2	192.9	68.0	33.4	162.3	70.1	123.9	75.1	751.5
1,000,000 to 4,999,999.....	4.5	14.7	466.0	56.8	66.2	178.2	50.5	98.7	50.5	986.1
5,000,000 and over.....	10.5	237.3	2,044.9	70.8	436.9	174.9	222.6	840.5	64.3	4,102.7
<b>Totals, Taxable Income.....</b>	<b>51.9</b>	<b>266.4</b>	<b>2,793.3</b>	<b>296.0</b>	<b>569.6</b>	<b>632.1</b>	<b>499.7</b>	<b>1,216.9</b>	<b>318.2</b>	<b>6,644.1</b>

### Succession Duties and Estate Taxes

From Jan. 1, 1947 to Mar. 31, 1963, only Ontario and Quebec levied succession duties, the other provinces having leased this field to the Federal Government under the terms of the federal-provincial tax agreements (see p. 1122). However, British Columbia re-entered the field, effective for all deaths occurring on or after Apr. 1, 1963. The incidence of the estate tax since that time is discussed at pp. 1129 and 1135. Federal revenue from succession duties and estate taxes in the year ended Mar. 31, 1971 amounted to \$119,835,070. In the same year, provincial revenues from succession duties in Quebec, Ontario and British Columbia were \$44,631,000, \$73,182,000 and \$22,722,000, respectively.

### Excise Taxes

Excise taxes collected by the Excise Division of the Department of National Revenue are given for the years ended Mar. 31, 1969-71 in Table 18.

**18.—Excise Taxes Collected, by Commodity, Years Ended Mar. 31, 1969-71**

Commodity	1969	1970	1971
	\$	\$	\$
Sales tax <sup>1</sup> .....	1,569,840,938	1,716,899,405	1,707,500,713
Other Excise Taxes—			
Cigarettes, tobacco and cigars.....	304,176,479	295,845,229	319,413,605
Jewellery, watches, ornaments, etc.....	9,462,220	10,393,633	10,190,385
Matches and lighters.....	1,106,976	1,093,209	1,100,841
Television sets, radios, tubes and phonographs.....	35,346,292	40,763,855	38,555,830
Toilet preparations.....	18,551,776	19,755,173	21,430,151
Wines.....	5,859,702	6,990,586	8,063,707
Sundry commodities.....	1,680,479	2,560,084	4,001,346
Interest and penalties.....	2,414,016	2,176,254	2,093,371
Less refunds and drawbacks.....	-733,047	-1,154,512	-1,625,862
<b>Totals.....</b>	<b>1,947,705,831</b>	<b>2,095,322,916</b>	<b>2,110,724,087</b>

<sup>1</sup> Net after deduction of refunds and drawbacks; excludes tax credited to the old age security fund.

### Excise Duties

Gross excise duties collected are given in the following statement for the years ended Mar. 31, 1969-71. The totals do not agree with net excise duties as shown in Table 8 because refunds and drawbacks are included. A drawback of 99 p.c. of the duty may be granted when domestic spirits, testing not less than 50 p.c. over proof, are delivered in limited quantities for medicinal or research purposes to universities, scientific or research laboratories, public hospitals, or health institutions in receipt of federal and provincial government aid.

<u>Item</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>
	\$	\$	\$
Spirits.....	185,367,682	194,732,949	209,360,993
Beer or malt liquor.....	134,970,315	139,353,060	149,153,500
Tobacco, cigarettes and cigars.....	196,646,182	193,840,437	212,173,674
Licences.....	32,693	32,085	36,219
<b>TOTALS.....</b>	<b>517,016,872</b>	<b>527,958,531</b>	<b>570,724,386</b>

## Section 4.—Federal-Provincial Conditional Grants and Shared-Cost Programs\*

During the year ended Mar. 31, 1970, federal expenditures on joint federal-provincial programs, which had experienced a slowdown in their rate of increase during 1968-69, picked up again as a result of the entry of five provinces in the medicare plan. These

\* As at January 1972. Prepared in the Federal-Provincial Relations Division, Department of Finance, Ottawa

programs take three forms: (1) the Federal Government contributes financial assistance to a program administered by a province; (2) the federal and provincial governments each assumes the sole responsibility for the construction, administration and financing of separate aspects of a joint project; or (3) the province contributes financially to a joint program administered by the Federal Government.

The first category of joint programs is by far the most common and such programs are commonly called conditional grant programs. They are characterized by the Federal Government agreeing to make money available to a province on certain conditions, such conditions always specifying the field, service or project to which the money must be applied. In addition to being entrusted with the administration of programs, the provinces may be required to make financial contributions to such programs, to provide certain facilities, and to meet certain specified standards in operating them. The various programs in the field of social policy are good examples of conditional grant programs. Under the hospital insurance program, for instance, the Federal Government undertakes to contribute to participating provinces a specified share of the costs incurred by the provinces in respect of public hospital insurance programs. The federal contribution in each province is equal to 25 p.c. of the average per capita cost of in-patient services in Canada as a whole plus 25 p.c. of the average per capita cost of in-patient services in the province multiplied by the average for the year of the number of insured persons in the province.

Although the hospital insurance program, with its specifications of eligible hospitals, sharable costs and the amount of the federal contribution, is characteristic of many conditional grant programs, there are others in which the conditions are nominal. For example, under the Canada Assistance Plan the Federal Government undertakes to share one half of the cost of welfare paid to recipients in need, the scale and conditions of the assistance to be determined by the provinces. In general, it may be said that the hospital insurance program conforms to the traditional pattern of conditional grants, whereas the Canada Assistance Plan marks an approach in which flexibility and adaptability to local circumstances is allowed to modify insistence on a national uniform standard.

Joint programs in the second category—those in which the federal and provincial governments accept sole responsibility for portions of a total project—are not numerous and are generally of a public works type. The irrigation projects carried out jointly by the Prairie Farm Rehabilitation Administration and the Province of Alberta on the St. Mary's and Bow Rivers in southern Alberta were of this nature. In the St. Mary's irrigation project, the Federal Government undertook the responsibility for the construction of all main reservoirs, large dams and connecting works, and Alberta assumed responsibility for the construction of the distribution system and the development and colonization of the new irrigable areas.

Joint programs in the third category are also few in number and the sums of money involved are seldom large. The South Saskatchewan River dam was an example; Canada undertook to pay the costs of the dam in the first instance, with Saskatchewan subsequently reimbursing Canada for one quarter of the federal expenditures (up to a maximum of \$25,000,000) on the dam and reservoir. By Mar. 31, 1968, the full amount had been recovered from Saskatchewan.

The federal transfers to the provinces in respect of the conditional grant and shared-cost programs increased from \$75,000,000 in the year ended Mar. 31, 1954, to an estimated \$1,896,000,000 in 1969-70. The increase was attributable largely to the introduction of the hospital insurance and diagnostic services program in 1958, medicare in 1968, increases in the level of assistance, and the integration of welfare programs under the Canada Assistance Plan. In 1969-70, federal contributions to the programs in respect of hospital and diagnostic services and welfare programs integrated with and into the Canada Assistance Plan were estimated at \$919,019,000 and \$480,972,000, respectively.

The increasing number and extent of conditional grant and shared-cost programs has occasioned some provincial criticisms and misgivings. It has been argued that the preponderant occupancy of the direct tax field in the postwar years by the Federal Government

encouraged the growth of such programs, as the provinces were denied the revenues that would have enabled them to provide equivalent programs themselves. At the 1964 Federal-Provincial Conference, the Province of Quebec proposed that a province be given the option to assume full administrative and financial responsibility for certain joint programs upon the Federal Government making available to that province the necessary additional tax room. These proposals were referred to a federal-provincial committee of officials for consideration. As a consequence of their consideration, the Prime Minister of Canada, in a letter to the provincial Premiers dated Aug. 15, 1964, proposed a temporary measure permitting a province for an interim period to assume full financial and administrative responsibility in respect of certain programs pending the development of more permanent arrangements. Parliament approved the necessary legislation—the Established Programs (Interim Arrangements) Act—in April 1965. Under the Act, the Government of Canada was authorized to enter into agreements with any province that wished to assume full financial and administrative responsibility for certain programs in return for fiscal compensation. The nature and number of programs were itemized in the schedules to the Act.

Schedule I listed the major conditional grant programs of a continuing nature and Schedule II listed smaller and more transient programs. The Schedule I programs were: (1) hospital insurance; (2) old age assistance, blind persons' allowances, disabled persons' allowances, and the welfare portion of unemployment assistance; (3) the technical and vocational training programs for youths who were not yet members of the labour force; and (4) the health grant program, except those elements that involved research and demonstration. The Schedule II programs were: (1) agricultural lime assistance; (2) the forestry programs; (3) hospital construction grants; (4) campgrounds and picnic areas; and (5) the roads-to-resources program. The Act was subsequently amended to include the Canada Assistance Plan.

If a province wished to avail itself of the provisions of the Established Programs (Interim Arrangements) Act in respect of a Schedule I program, it had to enter into a supplemental agreement in which it undertook to assume full responsibility for the administration and financing of the program. The Federal Government undertook to ensure that the province received revenue equivalent to the fiscal burden it assumed. The Federal Government undertook to: (a) abate by a specified percentage the individual income tax on the income of residents of the province; (b) pay associated equalization; and (c) make an operating cost adjustment. The operating cost adjustment payment or recovery was to ensure that a province did not suffer or benefit financially through assuming the financing of the federal share of the former joint program. Because of their smaller size and lack of continuity, the compensation associated with a Schedule II program did not provide for federal tax abatement or associated equalization payments. The compensation for these programs was to be paid directly to the province by the federal Minister of Finance.

The freedom of a province to vary the nature and condition of a program enumerated in the Established Programs (Interim Arrangements) Act differed between the Schedule I and Schedule II programs. Under the Act, a supplemental agreement with respect to a Schedule I program could vary the conditions of the original agreement only as to the manner in which Canada would contribute to the program and the manner in which accounts were submitted. A supplemental agreement for a Schedule II program might require the program to be continued as in the original authority or it might allow a province to substitute a provincial program having substantially similar objectives.

The Established Programs (Interim Arrangements) Act was designed to provide for an interim period during which a province might assume greater administrative and financial responsibility for the enumerated programs and during which time more permanent arrangements governing joint programs might be devised. The length of the interim period was set out in the Act for each program and varied from Mar. 31, 1967 to Dec. 31, 1970. The tax abatement associated with Schedule I programs was also set out in the Act and varied from 1 p.c. for the health grant program to 14 p.c. for hospital insurance.



## 19. Conditional Grants and Shared-Cost Programs as at October 1971

Department and Project	Year Established	Basis of Provincial Apportionment of Federal Funds	Provinces Participating <sup>1</sup>	Provincial Share <sup>2</sup>	Maximum Limitation on Grant <sup>3</sup>	Federal Contribution 1969-70 <sup>4</sup>
				p.c.		\$'000
<b>Agriculture—</b>						
Freight assistance on livestock shipments to Royal Winter Fair.....	1946	Extent of provincial programs.....	9 (Ont.)	25	O	67
4-H Club activities.....	1900	Extent of provincial programs.....	9 (N.S.)	50	O	268
Crop Insurance.....	1961	Extent of provincial programs.....	8 (Nfld., N.B.)	0.50 of admin. costs	O	4,678
Compensation—rabies control.....	1959	Incidence of disease.....	8 (Nfld., P.E.I.)	60	O	60
Barberry eradication.....	1964	Extent of provincial programs.....	Que., Ont.	50	O	8
Grants to special fairs.....	1957	Flat grant.....	Nfld., N.B.	5	F	36
<b>Central Mortgage and Housing Corporation—</b>						
Urban renewal.....	1944	Project cost.....	10	50 <sup>1/2</sup>	O	23,971
Public housing.....	1949	Project losses.....	10	25 or 50 <sup>1/2</sup>	O	5,451
Urban redevelopment.....	1954	Work completed.....	10	96 <sup>1/2</sup>	O	2,191
Sewage treatment projects.....	1960	Work completed.....	10	75 <sup>1/2</sup>	O	6,192
<b>Emergency Measures</b> .....	1952	Population.....	10	25-50 <sup>1/2</sup>	F	2,983
<b>Energy, Mines and Resources—</b>						
Water Conservation.....	1938	Estimated construction costs.....	Ont.	37 <sup>1/2</sup> -62 <sup>1/2</sup>	F	32
Greater Winnipeg Floodway, etc.....	1962	Estimated cost.....	Man.	25-62 <sup>1/2</sup>	F	314
Roads to Resources.....	1958	Flat grant for province.....	Nfld., N.B., Sask.	50	F	346
Flood Control.....	ad hoc	Extent of provincial programs.....	Ont., B.C.	50	O	566
<b>Environment—</b>						
Construction subsidy—fishing vessels.....	1942	Extent of provincial programs.....	Atlantic, Que.	—	O	565
Industrial development.....	1959	Extent of provincial programs.....	6 (Man., Sask., Alta., B.C.)	50	O	920
Relocation—fishing families.....	1967	Extent of provincial program.....	Nfld.	—	O	1,400
Spruce Budworm Eradication.....	1953	Incidence of infestation.....	N.B.	32 <sup>1/2</sup>	F	—
<b>Finance—</b>						
Canada Student Loans—service fees.....	1965	Grant per eligibility certificate.....	9 (Que.)	6	O	368
<b>Indian Affairs and Northern Development—</b>						
Non-reserve Schools for Indians—						
Capital contribution.....	ad hoc	Estimated cost.....	various school districts	ratio white to Indian children	O	—
Instructional contribution.....	1948	Estimated tuition costs.....	various school districts	—	O	34,391
Welfare services to Indians.....	1960	Specified in each agreement.....	Nfld., Ont., Man., Sask., Alta.	0-50	varies	257

Industry, Trade and Commerce—	1909	Estimated cost.....	9 (P.E.I.)	8	O	74
Vital statistics.....						
<b>Manpower and Immigration—</b>						
Agricultural Manpower.....	1941	Specified in agreement.....	9 (Nfld.)	50	F	159
Vocational Rehabilitation of Disabled Persons.....	1953	Extent of provincial programs.....	9 (Que.)	50	O	5,013
Technical and Vocational Training—						
research projects.....	1937-46	Varies.....	10	varies		—1,333 <sup>a</sup>
Capital Contribution.....	1945	Extent of provincial programs.....	10	25 to \$480 per capita +50 to \$320 per capita		
				7	F	88,359
					O	378
Municipal Winter Works.....	1958	Extent of approved municipal programs.....	10			
<b>National Health and Welfare—</b>						
National Health Grants—						
Hospital Construction.....	1948	Estimated construction.....	10	50	F	12,896
Professional Training.....	1948	Flat grant and population.....	10	8	F	1,604 <sup>a</sup>
Mental Health.....	1948	Flat grant and population.....	10	8	F	4,523 <sup>a</sup>
Tuberculosis Control.....	1948	Flat grant, population and TB deaths.....	10	8	F	4,077 <sup>a</sup>
Public Health Research.....	1948	Based on research needs.....	10	8	F	3,942
Cancer Control.....	1948	Flat grant and population.....	9 (Man.)	50	F	3,703 <sup>a</sup>
General Public Health.....	1948	Flat grant and population.....	10	10	F	9,977 <sup>a</sup>
Child and Maternal Health.....	1953	Flat grant, provincial infant birth and death ratio.....	10	8	F	645 <sup>a</sup>
Medical Rehabilitation and Crippled Children.....	1953-48	Flat grant and population.....	10	50 <sup>11</sup>	F	808 <sup>a</sup>
		(\$300,000,000 on basis of population \$175,000,000 by Federal Government, \$25,000,000 agreement of Atlantic Prov. incomes)	10	50	F	34,383
Health Resources Fund.....	1966	Population eligible for hospitalization x (25 p.c. of average national per capita costs + 25 p.c. of average pro- vincial per capita costs)				
Hospital Insurance.....	1958	Average number insured x 50 p.c. of average per capita costs of partici- pating provinces.....	10	7	O	919,019
Medicare.....	1968	Needy population (age group 65-66).....	Sask., B.C.	7	O	180,955
		Needy blind population (age group 18-66)	10	50	O	1,517
		Needy disabled population (age group 18-66)	10	25	O	3,309
		Needy unemployed.....	10	50	O	11,879
Unemployment Assistance.....	1955	Needy unemployed.....	P.E.I., N.S., Que., Ont., Alta.	50	O	14,434
Canada Assistance Plan.....	1966	Individuals in need.....	10	50	O	449,052
Fitness and Amateur Sport.....	1962	Flat grant and population.....	9 (Que.)	40	F	1,126
National Welfare Grants—						
Welfare services.....	1962	Based on need.....	10	50 <sup>5</sup>	F	208
Demonstration projects.....	—	Estimated cost.....		8		
Hospitalization and welfare of indigent immigrants	1947		N.S., Que., Ont.	50	O	114

For footnotes, see end of table, p. 1158.

## 19.—Conditional Grants and Shared-Cost Programs as at October 1971—concluded

Department and Project	Year Established	Basis of Provincial Apportionment of Federal Funds	Provinces Participating <sup>1</sup>	Provincial Share <sup>2</sup>	Maximum Limitation on Grant <sup>3</sup>	Federal Contribution 1969-70 <sup>4</sup>
<b>National Research Council—</b> Technical Information Services .....	1952	Extent of provincial programs .....	7 (Nfld., P.E.I., Que.)	p.c.	O	\$'000 375
<b>Public Works—</b> Trans-Canada Highway .....	1950	Provincial mileage and extent of provincial programs .....	10	10-50	O	28,772
Matane-Gaspé North Highway .....	1965	Mileage contribution .....	Que.	9	F	1,104
Portage du Fort Bridge .....	1966	Estimated cost .....	Ont., Que.	50	O	—
Okanagan Flood Control .....	1950	Estimated cost .....	B.C.	50	O	46
<b>Regional Economic Expansion—</b> Agricultural and Rural Development .....	1962	Extent of agreed programs .....	10	50	O	24,050
Fund for Rural Economic Development .....	1966	Specified in agreement .....	N.B., Que.	0-40	F	22,186
Shellmouth Dam .....	1962	Estimated cost .....	Man.	50	O	493
Coal subvention—electric power .....	1965	Atlantic coal consumed .....	N.B., N.S.	—	O	6,156 <sup>12</sup>
<b>Secretary of State—</b> Immigrants, Language— Instruction .....	1951	Estimated cost .....	9 (Que.)	50	O	372
Text books .....	1963	Estimated cost .....	9 (Que.)	—	O	68
<b>Transport—</b> Railway Grade Crossing Fund .....	1909	Approved construction .....	10	12½-15½	F	4,386
Railway abandonment—highway improvement .....	1965	Half of capitalized value of savings .....	N.B.	9	F	—
Trunk highways .....	1965	Ratio 3:3:3:1 .....	Atlantic	25-50	O	8,123
Municipal Airports— Operational subsidy .....	1927	Related to airport operational deficit .....	10	—	O	807
Capital .....	1927	Approved capital projects .....	10	50½	F	1,081

<sup>1</sup> Provinces excepted are shown in parentheses.<sup>2</sup> As here used, 50 p.c. may mean the province must contribute 50 p.c. of the cost of the project or must match the federal contribution.<sup>3</sup> F=a maximum limit set to the federal share; P=a maximum limit to the provincial share; and O=federal and provincial shares are open-ended.<sup>4</sup> Source: *Public Accounts of Canada, 1970*.<sup>5</sup> Represents the provincial and/or municipal share.<sup>6</sup> Recovery.<sup>7</sup> Not uniform.<sup>8</sup> Provinces to provide administration services facilities land loans or to undertake a specific portion of the project, etc.<sup>9</sup> Quebec under the Established Programs (Interim Arrangements) Act received \$6,794,000 for these programs.<sup>10</sup> Provinces do not have an existing level of expenditures or to bear residuary costs.<sup>11</sup> Share for provision of services only.<sup>12</sup> Includes final coal subvention payments totalling \$41,600,000.

The Province of Quebec alone availed itself of the provisions of the above legislation. At the federal-provincial meetings in September and October 1966, the Federal Government offered the provinces revised and more permanent arrangements. The Federal Government proposed to abate, for the period 1967-70, 17 p.c. of the personal income tax in those provinces that would take over the financial responsibility for the hospital insurance, welfare (i.e., Canada Assistance Plan) and health grant programs. To ensure fiscal equity, equalization and operating cost adjustment payments were to be associated with the abatement. As the technical and vocational program was being discontinued in its existing form, the offer did not apply to that program. These proposals were re-offered again at the Nov. 4-5, 1968 meeting of the Ministers of Finance and Provincial Treasurers. Until the future responsibility for the joint programs, hospital insurance, Canada welfare, and health grants is finally agreed upon, the contracting-out arrangement in the Established Programs (Interim Arrangements) Act has been extended by the annual Estimates.

**Additional Readings:—**

Donald V. Smiley, *Conditional Grants and Canadian Federalism* (Canadian Tax Papers No. 32), Toronto, Canadian Tax Foundation, February 1963. Federal-Provincial Relations Division, Department of Finance, *Federal-Provincial Conditional Grant and Shared-Cost Programmes 1962*, Ottawa, Queen's Printer, October 1963, \$3 (Catalogue No. F2-2563). Appendix to House of Commons Debates of Sept. 10, 1964. Statutes of Canada 1964-65, c. 54. George E. Carter, *Canadian Conditional Grants since World War II* (Canadian Tax Papers No. 54), Toronto, Canadian Tax Foundation, November 1971.

## Section 5.—Provincial Government Finance

Provincial government accounting and reporting practices vary considerably so that adjustments to the provincial *Public Accounts* figures are required in order to produce comparable statistics. For example, financial data relating to specific functions are sometimes excluded from the ordinary or current accounts of certain provinces; and therefore the transactions of special or administrative funds carrying out these functions must be consolidated with the provincial accounts to produce statistics which are comparable to those of the other provinces.

**Revenue and Expenditure.**—Table 20 shows the gross general revenue and expenditure of provincial governments and their funds for the fiscal years ended Mar. 31, 1967-69. Tables 21 and 22 reflect the details by source and function of the gross revenue and expenditure. Table 23 gives details of the amounts transferred by provincial governments to municipalities, school boards and other local government entities.

**20.—Gross General Revenue and Expenditure of Provincial Governments,  
Years Ended Mar. 31, 1967-69**

Province or Territory	Gross General Revenue			Gross General Expenditure		
	1967	1968	1969	1967	1968	1969
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland.....	178,857	231,679	262,543	273,591	304,062	311,581
Prince Edward Island..	38,615	48,499	54,958	49,242	53,513	56,065
Nova Scotia.....	246,101	309,388	335,890	263,850	322,976	378,318
New Brunswick.....	200,416	280,348	313,224	219,488	318,853	346,666
Quebec.....	1,991,975	2,491,455	2,831,771	2,290,541	2,651,960	2,883,189
Ontario.....	2,437,953	2,896,484	3,492,868	2,405,588	2,991,540	3,611,453
Manitoba.....	316,565	390,932	434,251	331,909	378,633	425,161
Saskatchewan.....	388,402	432,886	477,138	394,201	427,416	467,099
Alberta.....	604,090	660,200	861,063	686,569	760,101	870,317
British Columbia.....	748,458	829,064	1,040,378	706,385	800,455	948,842
Yukon Territory.....	7,336	10,270	12,331	8,391	12,136	13,546
Northwest Territories..	8,050	12,330	13,568	11,621	14,239	18,802
<b>Canada.....</b>	<b>7,166,818</b>	<b>8,593,535</b>	<b>10,129,983</b>	<b>7,641,376</b>	<b>9,035,884</b>	<b>10,331,039</b>



21.—Details of Gross General Revenue of Provincial Governments, Year Ended Mar. 31, 1969

Source	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Canada
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Taxes—</b>													
Income—													
Corporations <sup>1</sup> .....	8,967	1,054	11,197	8,170	184,512	304,679	24,830	19,596	49,858	48,163	—	—	660,326
Individuals <sup>2</sup> .....	13,829	2,668	29,335	21,253	696,933	620,176	64,635	54,978	98,334	161,791	—	—	1,764,362
On premiums of insurance companies.....	751	170	1,571	1,233	21,484	27,729	2,073	1,884	3,889	5,197	—	—	1,65,981
Other, on corporations.....	—	—	—	—	43,434	1,555	—	—	—	—	—	—	43,989
Property.....	—	—	106	23,346	—	1,755	—	201	—	10,512	392	—	36,312
<b>Sales—</b>													
General.....	35,301	4,691	28,664	38,060	489,297	493,087	61,401	65,470	—	179,267	—	—	1,395,238
Motor fuel.....	18,272	5,025	31,807	26,360	264,269	366,182	41,813	46,754	69,979	7,178	1,434	1,433	943,206
Alcoholic beverages.....	781	—	—	—	—	—	—	—	—	—	243	—	1,694
Amusements and admissions.....	73	132	718	505	13,442	30,305	1,941	278	1,706	2,775	19	—	1,864
Tobacco.....	4,019	842	706	2,739	60,294	55,234	8,489	6,059	—	—	—	—	137,676
Other commodities and services <sup>3</sup> .....	28	—	—	—	48,563	4,071	—	—	2	2,942	—	—	150,330
Succession duties.....	—	—	—	—	38,751	68,472	13,515	18,437	12,842	14,708	—	—	121,934
Hospital and medicare insurance premiums.....	—	—	—	—	—	237,027	20,935	2,306	3,351	52,435	—	—	354,256
Other.....	844	26	59	132	4,841	20,935	2,421	2,306	3,351	335	3	—	35,433
<b>Totals, Taxes.....</b>	<b>81,384</b>	<b>15,389</b>	<b>103,863</b>	<b>121,798</b>	<b>1,865,890</b>	<b>2,246,436</b>	<b>225,209</b>	<b>215,964</b>	<b>240,141</b>	<b>548,303</b>	<b>2,091</b>	<b>1,433</b>	<b>5,667,901</b>
<b>Privileges, Licences and Permits—</b>													
Liquor control and regulations.....	5,510	24	229	427	31,899	40,372	3,402	243	1,582	824	20	81	84,613
Motor vehicles.....	4,603	1,238	9,218	7,014	82,440	137,479	12,760	13,995	22,812	32,042	376	205	324,782
Natural resources.....	3,531	47	1,530	4,766	65,948	54,130	6,221	38,376	294,363	126,962	46	35	595,935
Other.....	830	172	654	742	17,788	24,929	1,288	1,398	4,123	4,542	73	56	56,595
<b>Totals, Privileges, Licences and Permits.....</b>	<b>14,474</b>	<b>1,481</b>	<b>11,631</b>	<b>13,549</b>	<b>198,075</b>	<b>250,910</b>	<b>23,671</b>	<b>51,012</b>	<b>322,870</b>	<b>164,360</b>	<b>515</b>	<b>377</b>	<b>1,061,925</b>
<b>Sales and services.....</b>	<b>9,069</b>	<b>4,629</b>	<b>9,716</b>	<b>7,555</b>	<b>49,838</b>	<b>64,894</b>	<b>15,711</b>	<b>16,343</b>	<b>25,223</b>	<b>60,788</b>	<b>839</b>	<b>366</b>	<b>265,001</b>
Fines and penalties.....	864	89	659	1,136	4,419	22,263	969	2,073	2,527	1,840	42	33	36,914
Interest, discount, premium and foreign exchange.....	2,203	1,851	16,901	3,318	17,168	127,675	16,335	41,147	58,549	27,152	182	286	313,037
Net income from sales of alcoholic beverages by Provincial Liquor Commissions.....	6,296	2,582	19,737	16,999	43,268	153,641	22,071	25,417	39,930	55,360	1,363	1,827	388,241
Other revenue of government enterprises.....	—	—	—	—	—	8,657	8,657	240	3,059	—	—	—	11,716
Other revenue.....	41	27	2	411	5,048	1,061	1,022	240	398	175	41	44	8,510
<b>Totals, Gross Revenue from Own Sources.....</b>	<b>114,331</b>	<b>26,048</b>	<b>162,509</b>	<b>164,796</b>	<b>2,183,706</b>	<b>2,872,880</b>	<b>304,988</b>	<b>363,853</b>	<b>692,697</b>	<b>857,978</b>	<b>5,093</b>	<b>4,366</b>	<b>7,753,245</b>

<b>Conditional Transfers—</b>											
From Federal Government.....	55,108	13,710	84,937	69,445	175,952	533,848	81,377	91,861	139,486	164,412	1,475,078
From municipal governments.....	63	3	988	1,326	3,085	4,376	158	1,255	11,624	16,007	38,908
<b>Totals, Conditional Transfers.....</b>	<b>55,171</b>	<b>13,713</b>	<b>85,925</b>	<b>70,771</b>	<b>179,037</b>	<b>588,224</b>	<b>82,035</b>	<b>93,116</b>	<b>151,110</b>	<b>180,419</b>	<b>1,513,986</b>
<b>Unconditional Transfers—</b>											
From Federal Government—											
Statutory subsidies.....	9,656	657	2,132	1,745	3,964	4,624	2,127	2,142	2,965	1,672	31,684
Federal-provincial fiscal arrangements.....	72,162	14,308	83,412	74,869	462,189 <sup>s</sup>	21,677	44,177	17,992	6,860	—	808,802
Share of income tax on power utilities.....	1,223	232	1,912	123	2,875	5,463	924	35	7,431	561	20,946
Grants in lieu of taxes on federal property...	—	—	—	920	—	—	—	—	—	400	1,320
<b>Totals, Unconditional Transfers.....</b>	<b>83,041</b>	<b>15,197</b>	<b>87,456</b>	<b>77,657</b>	<b>469,028</b>	<b>31,764</b>	<b>47,228</b>	<b>20,169</b>	<b>17,256</b>	<b>1,981</b>	<b>862,752</b>
<b>Totals, Gross General Revenue.....</b>	<b>262,543</b>	<b>54,358</b>	<b>335,890</b>	<b>313,224</b>	<b>2,531,771</b>	<b>3,492,868</b>	<b>434,251</b>	<b>477,138</b>	<b>861,063</b>	<b>1,040,378</b>	<b>10,129,983</b>

<sup>1</sup> Collected by the Federal Government for all provinces except Quebec and Ontario.  
<sup>2</sup> Collected by the Federal Government for all provinces except Quebec.  
<sup>3</sup> Taxed under the general sales tax.  
<sup>4</sup> Nfld., telegraphic tax; N.S., long-distance telephone tax; Quebec, tax on meals and hotel accommodation, \$37,236,000, and tax on telecommunications, \$10,378,000; Man., tax on electricity, telephone, natural gas and coal (Revenue Act, 1964, Part 1); B.C., fuel oil tax.  
<sup>5</sup> Includes payments under the Established Programs (Interim Arrangements) Act, \$186,924,000.  
<sup>6</sup> Represents subsidies and special compensation in lieu of certain taxes and for amortization payments on outstanding loans as provided in the tax-rental agreement.

22.—Details of Gross General Expenditures of Provincial Governments, Year Ended Mar. 31, 1969

Function	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Canada
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
General government.....	9,668	2,634	10,562	12,144	93,259	111,746	13,439	15,381	18,372	41,400	1,610	2,570	332,872
Protection of persons and property.....	8,036	979	8,711	6,795	101,695	159,880	13,268	13,047	34,909	32,963	827	2,026	386,236
Transportation and Communications—													
Highways, roads and bridges.....	57,579	11,065	70,686	49,678	294,406	435,624	48,619	71,237	86,404	95,213	1,109	702	1,222,322
Waterways.....	403	26	525	813	887	2,767	2,440	580	249	33,213	13	—	41,916
Telecommunications.....	—	—	51	—	8,442	—	261	558	—	—	—	—	9,312
Other.....	15	—	42	—	4,043	24,696	576	60	1,789	—	14	—	31,275
Totals, Transportation and Communications.....	57,997	11,091	71,304	50,491	307,818	463,087	51,896	72,435	88,442	128,426	1,136	702	1,304,825
Health and Social Welfare—													
Health—													
Hospital care.....	47,086	8,267	68,961	57,072	615,182	765,842	83,544	88,277	173,139	165,930	994	2,077	2,076,371
General health.....	517	184	2,359	3,026	5,285	22,141	2,651	1,664	1,439	2,580	393	3	42,242
Public health.....	2,357	1,089	7,710	2,547	32,580	35,641	6,131	9,622	8,562	12,216	797	1,544	120,796
Medical, dental and allied services.....	6,651	389	2,365	1,211	21,627	100,285	4,962	26,398	30,196	68,662	—	106	263,452
Social Welfare—													
Old age assistance.....	424	684	1,246	—	7,464	349	1,123	115	2,262	6,914	7	63	20,651
Other aid to the aged.....	1,030	1,742	233	—	14,438	27,075	892	1,058	821	4,740	452	6	52,487
Aid to blind persons.....	374	72	544	—	2,059	243	251	100	357	528	5	31	4,564
Aid to disabled persons.....	938	74	3,071	—	16,006	1,394	1,324	208	1,953	3,004	3	29	28,004
Aid to unemployed and unemployables.....	35,207	3,833	15,829	24,803	189,556	143,442	21,334	22,302	45,035	58,349	89	272	560,051
Mothers' allowances.....	28,423	—	—	—	—	—	—	—	—	—	—	—	28,567
Child welfare.....	4,266	400	2,689	80	147,867	33,195	5,251	3,435	7,637	14,456	246	105	219,627
Labour.....	170	63	332	704	9,113	4,640	541	440	742	665	—	57	17,440
Winter works projects.....	—	260	75	—	23,803	8,463	760	1,142	2,141	417	—	—	37,118
Other social welfare.....	2,101	162	2,499	425	25,996	11,288	5,182	4,700	5,719	4,577	64	104	62,817
Totals, Health and Social Welfare.....	101,121	17,219	107,913	89,868	1,139,399	1,153,998	133,946	160,061	280,177	343,038	3,050	4,397	3,534,187
Recreational and cultural services.....	2,171	739	3,020	1,727	31,633	33,173	8,740	9,021	7,993	9,089	283	635	108,224
Education—													
Schools operated by local authorities.....	41,104	8,078	54,128	82,825	517,031	640,290	71,868	70,999	145,958	170,037	4,264	545	1,816,127
Universities, colleges and other schools.....	28,024	4,078	40,984	33,238	219,209	342,433	42,825	38,045	125,599	82,592	3,230	3,230	961,002
Manpower training.....	3,139	635	2,910	2,591	29,075	20,675	4,346	1,984	5,074	3,347	835	166	73,942
Education of the handicapped.....	—	—	696	907	454	12,040	1,845	823	1,189	1,252	—	5	19,897
Superannuation and pensions.....	—	—	3,511	785	603	51,947	1,341	1,426	3,365	5,453	—	21	71,097
Other.....	1,553	185	4,481	1,830	34,095	62,638	12,292	2,999	1,886	3,694	24	504	126,121
Totals, Education.....	74,106	13,017	106,710	122,176	800,407	1,142,023	134,517	116,276	283,071	266,375	5,128	4,470	3,068,276





23.—Amounts Transferred to Local Governments by Provincial Governments,  
Year Ended Mar. 31, 1971

Function	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Canada
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Conditional Transfers—													
General Government—													
Protection.....	—	22	51	—	—	165	614	1	—	5	—	113	971
Highways, roads and bridges.....	1,924	38	22	—	1,573	1,785	—	2	224	534	—	—	4,178
Other transportation.....	—	55	217	296	11,843	127,016	10,429	15,331	18,105	—	18	204	185,438
Hospital care.....	—	—	—	—	—	—	—	32	—	—	—	—	32
General health.....	—	—	3,253	107	—	—	—	—	—	—	—	—	3,360
Public health.....	100	7	429	—	—	17	—	—	—	—	—	—	446
Medical, dental and allied services.....	—	—	—	—	5,075	2,064	—	336	2,202	1,031	—	—	10,815
Aid to the unemployed.....	—	—	6,807	—	—	1,143	—	1,164	—	—	—	—	2,307
Child welfare.....	—	—	—	—	—	49,685	4,435	—	3,973	35,213	—	—	100,173
Winter works.....	—	258	—	—	23,303	1,593	—	1,142	2,141	417	—	—	1,668
Other welfare.....	—	—	75	—	—	8,462	755	—	—	—	—	—	36,224
Recreational and cultural services.....	—	4	2	—	3,965	2,575	—	278	180	325	—	140	2,452
Schools operated by local authorities.....	118	7,500	50,910	—	511,719	621,772	69,577	68,812	141,388	122,258	—	540	1,594,584
Universities and colleges.....	—	—	19	—	5,012	89	—	—	—	5,258	—	—	10,387
Other education.....	—	—	—	—	—	55	—	—	—	—	—	28	86
Forests.....	—	—	—	—	163	118	—	—	8	—	—	—	289
Lands, settlement and agriculture.....	—	—	8	—	1,871	2,527	—	208	237	—	—	—	4,858
Water resources.....	—	—	—	134	125	11,002	—	650	—	7	—	—	11,911
Trade and industrial development.....	—	12	—	—	8	—	178	102	—	—	—	—	298
Local government planning.....	571	—	229	235	—	3,394	445	499	485	—	—	—	5,858
Debt charges.....	—	1	—	—	2,969	38	—	—	—	—	—	—	3,006
Other expenditures.....	2,365	—	—	—	1,305	2,327	—	—	1,999	1,513	26	—	9,535
Totals, Conditional Transfers.....	5,090	7,897	62,082	772	569,429	837,412	86,469	88,557	170,942	166,636	44	1,025	1,996,355
Unconditional Transfers.....	4,594	524	5,487	13,915	125,785	60,358	5,120	—	33,519	39,504	254	345	289,405
<b>Totals, Transfers to Local Governments.....</b>	<b>9,684</b>	<b>8,421</b>	<b>67,569</b>	<b>14,687</b>	<b>695,214</b>	<b>897,770</b>	<b>91,589</b>	<b>88,557</b>	<b>204,461</b>	<b>206,140</b>	<b>298</b>	<b>1,370</b>	<b>2,285,760</b>

**Debt of Provincial Governments.**—Table 24 shows total bonded debt, by province, as at Mar. 31, 1967 and 1968, Table 25 shows that the majority of bond issues are payable in Canada, and Table 26 gives details of total direct and indirect debt of provincial governments as at Mar. 31, 1968. These were the latest data available at time of writing.

**24. —Gross Bonded Debt (exclusive of Treasury Bills) of Provincial Governments, as at Mar. 31, 1967 and 1968**

Province and Year	Bonded Debt	Average Interest Rate	Average Term of Issue	Province and Year	Bonded Debt	Average Interest Rate	Average Term of Issue
	\$'000	p.c.	yrs.		\$'000	p.c.	yrs.
Newfoundland—				Manitoba—			
1967.....	269,575	5.68	21.7	1967.....	278,693	4.78	17.4
1968.....	354,544	5.98	20.2	1968.....	304,159	4.87	17.4
Prince Edward Island—				Saskatchewan—			
1967.....	58,541	5.55	21.6	1967.....	665,315	4.86	19.1
1968.....	64,332	5.74	21.0	1968.....	687,063	4.94	19.3
Nova Scotia—				Alberta—			
1967.....	454,210	4.82	20.8	1967.....	7,183	2.87	20.4
1968.....	580,136	5.31	21.7	1968.....	6,019	2.89	20.9
New Brunswick—				British Columbia—			
1967.....	371,332	5.00	20.9	1967.....	67,917	3.47	24.8
1968.....	394,382	5.16	21.0	1968.....	67,917	3.47	24.8
Quebec—				<b>Totals—</b>			
1967.....	1,469,031	5.35	18.4	<b>1967.....</b>	<b>6,302,790</b>	<b>4.95</b>	<b>20.1</b>
1968.....	1,674,654	5.60	18.7	<b>1968.....</b>	<b>7,402,423</b>	<b>5.08</b>	<b>20.2</b>
Ontario—							
1967.....	2,660,993	4.75	21.0				
1968.....	3,269,217	5.01	20.9				

**25.—Gross Bonded Debt (exclusive of Treasury Bills) of Provincial Governments, by Place of Payment, as at Mar. 31, 1967 and 1968**

Payable in—	1967	1968
	\$'000	\$'000
Canada.....	5,095,232	5,924,146
United States.....	1,131,848	1,408,061
United States and Canada.....	48,365	47,202
Britain, United States and Canada.....	18,242	13,911
Switzerland.....	9,103	9,103
<b>Totals.....</b>	<b>6,302,790</b>	<b>7,402,423</b>



## Section 6.—Local Government Finance

**Local Government Taxation.**—Table 27 shows, for the year 1968, local taxes levied by municipalities and by some school authorities and total taxes outstanding at the end of the year. Because of the considerable differences in the division of responsibility for services between the provincial governments and their respective municipalities, these figures should not be used as a basis for interprovincial comparisons of the relative burden of local government taxation.

27.—Local Government Taxation, by Province, 1968

Item	New-found-land	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario
Taxation revenue.....\$'000	10,573	6,122	65,173	11,424	813,177	1,286,854
Tax Collections, Current and Arrears—						
Total.....\$'000	10,243	5,958	62,214	11,424	806,590	1,290,446
Percentage of taxation revenue.....p.c.	96.88	97.32	95.46	100.0	99.19	100.28
Taxes receivable, current and arrears.....\$'000	4,599	1,666	15,221	499	129,596	98,144
Percentage of taxation revenue.....p.c.	43.50	27.21	23.35	4.37	15.94	7.63
	Manitoba	Saskatchewan	Alberta	British Columbia	Yukon Territory	North-west Territories
Taxation revenue.....\$'000	129,461	147,613	217,501	296,564	327	726
Tax Collections, Current and Arrears—						
Total.....\$'000	125,861	137,818	213,742	296,211	337	670
Percentage of taxation revenue.....p.c.	97.22	93.36	98.27	99.88	103.06	92.29
Taxes receivable, current and arrears.....\$'000	29,785	20,038	32,977	9,617	122	176
Percentage of taxation revenue.....p.c.	23.01	13.57	15.16	3.24	37.31	24.24

**Local Government Revenue, Expenditure and Debt.**—Tables 28, 29 and 30 show comparative totals and details of gross revenue and expenditure of local governments, by province, and Table 31 sets out the direct debt of local governments for the fiscal years ended nearest Dec. 31, 1968.

28.—Gross Revenue and Expenditure of Local Governments, by Province, Fiscal Years Ended Nearest Dec. 31, 1968

Province	Gross Revenue	Gross Expenditure	Province or Territory	Gross Revenue	Gross Expenditure
	\$'000	\$'000		\$'000	\$'000
Newfoundland.....	24,396	30,757	Saskatchewan.....	275,678	292,860
Prince Edward Island.....	18,208	18,499	Alberta.....	506,856	580,921
Nova Scotia.....	146,702	158,232	British Columbia.....	584,121	627,540
New Brunswick.....	36,331	41,738	Yukon Territory.....	1,077	782
Quebec.....	1,616,501	1,780,519	Northwest Territories.....	2,120	2,455
Ontario.....	2,493,740	2,758,372			
Manitoba.....	269,743	271,492			
			<b>Canada.....</b>	<b>5,975,473</b>	<b>6,564,167</b>



## 29. Details of Gross Revenue of Local Governments, Fiscal Years Ended Nearest Dec. 31, 1968

Source	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Canada
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Taxes, General and School—</b>													
Real property.....	5,051	5,474	59,079	11,361	611,647 <sup>1</sup>	1,101,899	112,332	127,256	190,451	265,344	238	636	2,494,658
Personal property.....	2,384	421	2,351	—	47,407	148,903	8,440	8,916	10,798	7,405	...	22	237,077
Business.....	358	141	2,258	—	—	—	—	13	...	...	...	12	2,982
Poll.....	1,206	—	—	—	6,922 <sup>2</sup>	...	629	3,691	...	...	...	...	12,418
Sales and amusement.....	200	16	432	—	—	...	26	222	—	36	...	...	10,705
Other.....	274	70	1,023	63	137,428	33,062	8,044	7,545	16,252	23,779	89	56	227,675
Special assessments (owner's share) and charges.....	10,573	6,122	65,173	11,424	813,177	1,286,854	129,461	147,613	217,501	296,561	327	726	2,985,515
<b>Totals, Taxes.....</b>	601	84	996	643	16,158	18,001	2,582	3,386	11,291	13,955	63	23	67,783
Privileges, licences and permits.....	2,133	643	6,546	6,773	41,147	100,155	15,156	17,092	32,216	28,265	226	231	253,583
Sales and services.....	8	111	608	142	15,640	14,100	2,002	2,432	4,935	6,005	45	9	46,097
Fines and penalties.....	29	5	1,257	120	4,303	11,537	2,627	2,067	3,443	3,669	7	4	29,068
Interest, discount, etc.....	38	120	241	85	5,230	—	4,152	3,569	19,795	2,078	—	—	35,308
Own enterprise contributions.....	5,165 <sup>4</sup>	73	1,257	1,281	27,208	69,941	6,417	5,390	11,004	5,920	16	130	133,800
Other revenue.....	19,547	7,158	76,078	20,408	925,861	1,500,648	162,397	181,549	300,185	357,056	684	1,123	3,551,754
<b>Totals, Gross Revenue From Own Sources.....</b>	65	27	3,976	21	2,904	27,693	608	876	832	2,340	38	—	39,380
Conditional Transfers from—	3,218	10,403	57,771	1,445	549,722	876,540	96,061	89,113	168,336	218,137	114	525	2,071,385
Federal Government.....	3,283	10,430	61,747	1,466	552,626	904,233	96,669	89,989	169,168	220,477	152	525	2,110,765
Provincial governments.....													
<b>Totals, Conditional Transfers.....</b>													
Unconditional Transfers—													
From Governments—	188	100	3,388	—	2,385	22,238	3,315	1,332	3,415	2,259	76	119	38,815
Federal grants in lieu of taxes.....	—	20	—	2,462	713	—	—	—	11	73	—	96	3,375
Other.....	21	703	—	11,935	2,062	7,586	2,084	626	2,614	1,096	—	16	16,808
Provincial grants in lieu of taxes.....	2,355	495	2,073	—	130,847	50,622	2,626	—	29,639	—	165	241	230,998
Other.....	—	—	—	—	—	—	—	—	—	—	—	—	—
From Government Enterprises—	2	5	1,747	—	1,809	3,038	474	181	—	767	—	—	8,023
Federal.....	—	—	966	—	198	5,375	2,178	2,001	1,824	2,393	—	—	14,935
Provincial.....	2,566	620	8,877	14,397	138,014	88,859	10,677	4,140	37,503	6,588	241	472	312,954
<b>Totals, Unconditional Transfers.....</b>	5,849	11,050	70,624	15,863	690,640	993,092	107,346	94,120	206,671	227,065	393	997	2,423,719
<b>Totals, Transfers.....</b>	24,396	18,208	146,702	36,331	1,616,501	2,493,740	269,743	275,678	506,536	584,121	1,077	2,120	5,975,473
<b>Gross General Revenue.....</b>													

<sup>1</sup> Includes \$52,469,130 special taxes, and \$360,000,000 for school tax revenue.<sup>2</sup> Amusement only (Quebec).<sup>3</sup> "Personal property," included with "Real property" in Prince Edward Island, Nova Scotia, Quebec and Manitoba.<sup>4</sup> Includes special private grant \$3,525,782.

30.—Details of Gross Expenditure of Local Governments, Fiscal Years Ended Nearest Dec. 31, 1968

Function	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Canada
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
General government services.....	3,170	387	8,058	3,265	106,053	125,261	11,396	11,799	18,832	25,440	158	608	314,427
Protection of persons and property.....	1,359	667	10,945	9,376	131,103	182,890	19,913	15,582	38,305	53,353	155	77	403,725
Public works.....	6,915	896	8,836	8,129	193,407	398,048	30,568	48,925	80,760	54,645	141	316	831,586
Sanitation and waterworks.....	10,264	600	10,796	10,534	178,875	194,304	20,909	18,210	41,703	51,713	232	382	538,522
Health.....	5	—	3,120	87	8,579	42,349	3,570	13,577	27,955	4,302	10	12	103,566
Social welfare.....	2	45	9,395	34	5,947	101,461	4,515	2,803	8,444	49,962	—	—	182,608
Education (excl. debenture debt charges) <sup>1</sup> .....	742	13,873	90,021	1,358	827,469	1,389,599	140,297	142,458	293,371	299,793	—	788	3,199,769
Recreation and community services.....	1,192	201	3,505	3,277	63,316	93,604	10,355	15,931	24,934	30,802	47	217	247,381
Debt Charges (excl. Retirements and Sinking Fund Contribution)— Debenture interest <sup>2</sup> .....	1,301	1,402	7,312	2,966	177,053	143,741	14,402	14,133	31,459	35,744	35	47	429,595
Other long-term interest.....	1,119	66	348	34	900	—	—	58	—	—	—	—	2,525
Other.....	859	133	1,427	750	6,222	7,002	613	1,467	655	1,735	—	—	20,863
Totals, Debt Charges.....	3,279	1,601	9,087	3,750	184,175	150,743	15,015	15,658	32,114	37,479	35	47	452,983
Own enterprises.....	761	—	2	160	—	13,776	4,362	951	1,810	289	—	1	22,112
Other Expenditures— Provision for reserves.....	406	135	1,413	214	6,632	23,810	3,061	3,997	4,155	13,034	3	5	56,865
Other.....	2,662	94	3,054	1,554	74,963	42,627	7,531	2,969	8,538	6,728	1	2	150,623
Totals, Other Expenditures.....	3,068	229	4,467	1,768	81,595	66,337	10,592	6,966	12,663	19,762	4	7	207,488
<b>Gross General Expenditure (Cost of Services Provided).....</b>	<b>30,757</b>	<b>13,499</b>	<b>158,232</b>	<b>41,738</b>	<b>1,780,519</b>	<b>2,758,372</b>	<b>271,492</b>	<b>292,860</b>	<b>580,921</b>	<b>627,540</b>	<b>782</b>	<b>2,455</b>	<b>6,564,167</b>

<sup>1</sup> School expenditure for Quebec is estimated at \$445,000,000.<sup>2</sup> School debenture interest in Quebec estimated at \$64,000,000.

31.—Debt of Local Governments, as at Fiscal Year-Ends Nearest Dec. 31, 1968

Direct and Indirect Debt	Nfld.	P.E.I.	N.S.	N.B.	Que. <sup>1</sup>	Ont. <sup>2</sup>	Man.	Sask.	Alta.	B.C.	Y.T.	N.W.T.	Canada
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Direct Debt (less Sinking Funds)—</b>													
Debtenture debt.....	25,554	14,591	151,316	59,369	2,301,174	3,062,423	309,046	276,513	755,545	757,784	823	1,051	7,718,189
Less sinking funds.....	141	3,362	4,088	3,253	6,161	283,705	30,012	28,209	5,717	72,856	—	—	437,504
Net debtenture debt.....	25,413	11,229	147,228	56,116	2,295,013	2,778,718	279,034	248,304	752,828	684,928	823	1,051	7,280,685
Temporary loans and bank overdrafts...	19,528	2,228	37,298	9,155	170,112	198,162	55,063	13,748	17,609	22,706	—	301	545,910
Accounts and other payables.....	21,985	220	12,093	9,154	134,171	84,030	18,779	19,245	45,112	18,481	78	750	364,098
Other liabilities.....	6,172	106	11,100	3,092	114,823	29,689	15,998	9,810	20,941	18,508	34	307	230,580
<b>Totals, Direct Debt (less Sinking Funds).....</b>	<b>73,098</b>	<b>13,783</b>	<b>207,719</b>	<b>77,517</b>	<b>2,714,119</b>	<b>3,090,599</b>	<b>368,874</b>	<b>291,107</b>	<b>836,490</b>	<b>744,623</b>	<b>935</b>	<b>2,409</b>	<b>8,421,273</b>

<sup>1</sup> Data for Quebec schools not available. Includes \$39,330,000 debentures of the Montreal Transportation Commission guaranteed by the City of Montreal.<sup>2</sup> Includes other long-term indebtedness due to Ontario Water Resources Commission.

# CHAPTER XXIII.—TRENDS IN ECONOMIC AGGREGATES\*

## CONSPECTUS

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*The interpretation of the symbols used in the tables throughout the Year Book will be found on p. vii of this volume.*

In this Chapter various statistical statements and studies are presented in which broad areas of Canadian economic activity are covered in a comprehensive but summary form. These integrated aggregative economic accounts provide an interrelated framework for economic analysis and the observation of changes in the functioning of the Canadian economy and its structure and in economic and financial relationships with other countries.

## Section 1.—National Income and Expenditure Accounts

The national income and expenditure accounts, which have recently undergone a complete and comprehensive historical revision, constitute a subset of the system of national accounts (also included in this system are the balance of international payments, input-output tables, indexes of real domestic product by industry and financial flow accounts). The national income and expenditure accounts provide accounting summaries for the nation as a whole and portray economic activity in terms of transactions taking place between major groups of transactors, namely, governments, corporate and government business enterprises, persons and unincorporated businesses and non-residents. By combining and summarizing these operations into their various classes, information may be obtained on the functioning of the economy, which is of particular interest to governments concerned with problems of full employment, taxation and prices, and to businessmen concerned with programs of investment and marketing.

The tables on pp. 1176-1181 are based on the historically revised series of the national income and expenditure accounts. The new accounts incorporate major statistical revisions and changes in definitions and structural presentation. A full 1926-66 coverage of the

\* Section 1 was prepared in the National Income and Expenditure Division, Sections 2, 5 and 6 in the Balance of Payments and Financial Flows Division and Sections 3 and 4 in the National Output and Productivity Division of Statistics Canada. Section 7 was prepared by the authorities concerned.



tables for national income and gross national product (Table 2) and for gross national expenditure in current and in constant (1961) dollars (Tables 3 and 4) is available in a Statistics Canada summary report *National Income and Expenditure Accounts, 1926-68*. Definitions are as follows:—

*National Income*.—Net national income at factor cost measures the current earnings of Canadian factors of production (i.e., land, labour, capital) from productive activity. It includes wages and salaries, profits, interest, net rent and net income of farm and non-farm unincorporated business.

*Gross National Product*.—Gross national product, by totalling all costs arising in production, measures the market value of all final goods and services produced in the current period by Canadian factors of production. It is equal to national income plus net indirect taxes (indirect taxes less subsidies), plus capital consumption allowances and miscellaneous valuation adjustments.

*Personal Income*.—Personal income is the sum of current receipts of income whether or not these receipts represent earnings from production. It includes transfer payments from government (such as family allowances, unemployment insurance benefits and war service gratuities) in addition to wages and salaries, net income of unincorporated business, interest and dividends and net rental income of persons. It does not include undistributed profits of corporations and other elements of the national income not paid out to persons.

*Gross National Expenditure*.—Gross national expenditure measures the same aggregate as gross national product, namely, total production of final goods and services at market prices, by tracing the disposition of production through final sales to persons, to governments, to business on capital account (including changes in inventories) and to non-residents (exports). Imports of goods and services, including net payments of interest and dividends to non-residents, are deducted since the purpose is to measure only Canadian production.

### Economic Activity in 1970

The rate of expansion of the Canadian economy slackened somewhat in 1970, although the pace of activity increased in the final quarter of the year. The preliminary estimate of the aggregate value of Canada's production of goods and services in 1970 of \$84,468,000,000 was \$5,908,000,000 larger than for 1969, or an increase of 7.5 p.c. This rate of increase was somewhat lower than those recorded in most recent years, except in 1967 when the economy also experienced some slowing down. The rise in the implicit price deflator for Gross National Product (GNP) of 4.1 p.c., although smaller than the 4.7-p.c. rise in 1969, was still one of the largest annual price increases shown in recent years. However, most of the annual increase was attributable to the momentum of rising prices at the beginning of 1970; in the course of the year there was some deceleration. After allowing for rising prices, the physical volume of production rose by 3.3 p.c., compared with increases of 3.5 p.c. in 1967 and of about 5 p.c. in 1968 and in 1969.

Fiscal and monetary policies adopted in 1969 apparently played some role in slowing down the growth of incomes and domestic demand in the first half of 1970 and at the same time contributed to the moderation of price advance. Some easing of these policies appeared to have had an effect in the recovery of demand in the latter part of the year. The quickened pace of activity in the fourth quarter was noteworthy, especially in view of the fact that it occurred despite a major strike in the automobile industry during most of that period. A remarkable development in 1970 which contributed to the continued growth of the economy was the spectacular gain in exports realized in the first quarter and maintained throughout the remainder of the year.

Prices showed a progressive deceleration as the year progressed. However, despite some indications of moderate productivity gains, there was no comparable evidence of a parallel decrease in cost pressure. The sharp decline in corporation profits reflected these

underlying cost-price relationships as well as certain special factors—in particular, numerous work stoppages and the effect on some export-oriented industries of the appreciation of the Canadian dollar which resulted from the freeing of the exchange rate in the month of June. Employment increases were unusually small and insufficient to absorb the rapid rise in the labour force. As a result, the unemployment rate for the year jumped from 4.7 p.c. to 5.9 p.c., its highest level since 1962.

**Consumer Demand.**—Consumer spending in 1970 continued to be an important element in explaining cyclical changes in aggregate demand. Personal expenditure on consumer goods and services rose by 5.3 p.c. compared with increases of between 8 p.c. and 10 p.c. in the previous few years.

Not unexpectedly, the principal weakness occurred in the purchases of the more expensive durable goods items, where the consumer has the greatest scope for discretionary spending. Outlays on new passenger cars fell by 17 p.c.; a steep decline in this component occurred in the first quarter and, after recovering ground in the following two quarters, spending fell again in the fourth quarter when sales were affected by the automobile strike. (Only outlays on automobiles of North American manufacture were diminished; spending on overseas models rose strongly for the second consecutive year.) Among other durable goods, recreation equipment and home appliances also showed declines, while outlays on furniture, fixtures (such items as lamps and curtains) and floor coverings remained around their 1969 level.

Sluggishness of demand was also evident in the other major categories of consumer spending. The slowdown in semi-durable goods was especially marked in clothing and footwear. In services, the deceleration was due largely to the further extension of the medicare program, which has the effect of shifting most medical expenses from the personal to the government sector. However, services other than medical also showed a deceleration. Outlays on non-durable goods, which were propped up by accelerated rises in electricity and fuel, rose at a rate only slightly lower than in the previous year.

**Fixed Capital Outlays.**—High levels of mortgage interest rates in 1969 and early 1970 had an influence on investment outlays for new housing. Spending on new residential construction fell by 8 p.c. during the year and starts of new residential structures fell abruptly in March 1969 and continued to decrease until May 1970. This was reflected, with the usual time lag, in strongly declining outlays in the latter part of 1969 and the first two quarters of 1970. In response to the easing in mortgage markets starting in mid-year and to the injection of federal mortgage funds for direct lending in low-rental housing, especially in the fourth quarter, starts climbed sharply from July onward. This rebound in starts was reflected in a very sharp 12.7-p.c. advance in outlays in the closing quarter.

Business fixed investment, excluding housing, rose by 8.0 p.c. to a level of \$11,172,000,000. Despite falling profits and sluggish sales in domestic markets, these results (based on preliminary annual survey information) were in line with the expressed intentions declared at the beginning of the year in the survey of business investment. Spending on non-residential construction was up by 10.1 p.c. in 1970 compared with 5.1 p.c. in the previous year. Outlays on machinery and equipment rose at a lesser rate than in 1969—by 6.2 p.c. compared with 11.1 p.c.

**Inventory Investment.**—The bulk of the sharp decline in inventory investment in 1970 was attributable to the farm component, which swung from an accumulation of \$503,000,000 to a decumulation of \$178,000,000. The farm inventory movement reflected a sharp reduction in the value of the new crop, partly in response to the government Lower Inventory for Tomorrow (LIFT) program; it also reflected considerable decline in grain stocks in commercial channels, coinciding with rising grain exports.

Investment in non-farm business inventories also declined somewhat. This was due largely to sharp depletions in the fourth quarter, especially in the stocks of motor

vehicle dealers which were drawn down as a result of the automobile strike. For the year as a whole, the stock-to-shipments ratio in manufacturing industries and stock-to-sales ratios in both retail and wholesale trade were higher than in 1969.

**Exports and Imports.**—Strong foreign demand for Canadian goods and services in 1970 provided by far the greatest stimulus to the economy. The gains were concentrated in the first quarter, when they accounted for almost all of the increase in total demand. Exports were thereafter maintained at only slightly lower levels than in the first quarter, resulting in a gain of 13.5 p.c. for the year as a whole compared with one of 10.5 p.c. in 1969. Increases in merchandise exports were widespread but were particularly notable in metals and cereals. An unusual feature of this expansion was the altered direction of the flow of export gains. Exports to the United States, Canada's largest customer, increased moderately in line with the marked economic slowdown in that country, whereas exports to overseas countries, especially to the European Economic Community, to the United Kingdom and to Japan, rose spectacularly. In sharp contrast with exports, imports of goods and services rose by only 2.0 p.c. These developments in the external sector caused a huge swing of \$2,100,000,000 in the balance of transactions in goods and services with non-residents—from a deficit of \$967,000,000 to a surplus of \$1,136,000,000, the highest surplus ever recorded in Canada.

**Government Current Expenditure on Goods and Services.**—Rising government current expenditure on goods and services was another important sustaining force in 1970, the rise of 15.5 p.c. being the highest since 1966. Almost half of the gain occurred at the provincial level of government, which was up 37 p.c. due largely to increased expenditures under medicare programs. Expenditure of local governments and of hospitals also recorded sizable increases of over 10 p.c. and Federal Government current expenditure on goods and services rose by 5.1 p.c.

**Incomes.**—Wages, salaries and supplementary labour income made a substantial gain of 8.9 p.c. in 1970. Although this increase was smaller than those recorded in recent years (when annual increases generally exceeded 10 p.c.) it was, nevertheless, well ahead of the increase of 7.5 p.c. in GNP. Higher average earnings accounted for most of the increase in labour income. With most of the increase in employment absorbed by service-producing industries, there was an accentuation of the tendency toward larger increases in this group than in goods-producing industries.

The deceleration in the rate of increase of wages and salaries in the goods-producing industries was due entirely to slow growth in strike-affected manufacturing, where the rate of increase was about half that in 1969—5.6 p.c. compared with 10.7 p.c. Construction, which also experienced labour disputes, showed an increase similar to that shown in 1969. A sharp acceleration in mining, from 4.4 p.c. to 17.5 p.c., reflected an increase in production following strikes in 1969. In the service-producing industries, although all groups showed smaller rises in labour income, the deceleration was most evident in public administration.

Preliminary estimates of corporation profits before taxes indicated a decline of 6.2 p.c. for 1970, the first annual decline since 1967 when profits fell by 2.0 p.c. After falling in mid-1969, profits moved somewhat erratically along an apparently flat trend line from the third quarter of 1969 until the third quarter of 1970, then plunged by 11.7 p.c. in the strike-affected fourth quarter. The year's rise of 9.3 p.c. in capital consumption allowances cushioned the fall in gross profits (which include these provisions for depreciation); gross profits declined by a moderate 0.9 p.c.

Other income components either fell or rose at slower rates than in 1969. Accrued net farm income fell by almost 20 p.c., due mainly to the smaller crop. (Swings of this magnitude are not uncommon in this series.) Net income of non-farm unincorporated business, including rent, rose by 3.2 p.c. compared with 4.6 p.c. in 1969; interest and miscellaneous investment income was up by 13.4 p.c. after an unusually large 24-p.c. increase in 1969.



Personal disposable income (personal income after tax and other deductions) rose by 6 p.c., a slower pace than in any year since 1961. However, because personal expenditure on goods and services was even more sluggish, the personal saving ratio (personal saving as a proportion of personal disposable income) increased in 1970.

**Price Movements.**—For the year 1970 as a whole, the implicit price index for gross national expenditure rose by 4.1 p.c. compared with a 4.7-p.c. rise in 1969. While conceptually different, base-weighted price indexes such as the Consumer Price Index, the Industry Selling Price Indexes and the General Wholesale Price Index also showed price moderation. The price indexes for most major categories of final expenditure recorded lower increases than in 1969. Within 1970, the over-all implicit price index showed a deceleration, mainly as a result of the moderation from the second quarter onward, of the rise in the implicit price index for personal expenditure on goods and of that for exports.

The implicit price index for exports rose by 3.3 p.c. in 1970. The increase was concentrated in the first quarter, which showed an unusually strong 2.1-p.c. rise; export prices rose very little in the rest of the year. The effect on export prices of the freeing of the exchange rate in June 1970 was not clear. It would appear that for many export commodities where prices are determined in world markets or contractually fixed in United States dollars it caused a lowering of the Canadian prices. The impact of the appreciation of the Canadian dollar on import prices was, as expected, to slow their rate of increase.

The implicit price index for total personal expenditure rose by 3.2 p.c., a deceleration from the increases of about 4.0 p.c. recorded in each of the previous two years. All components except durables showed price deceleration. A marked easing in the price of rents explained the slowdown in services, as most other indexes in the services group continued to rise strongly. The softening in the non-durables price index was due to declining food prices, one of the more striking developments of the year, and was related to depressed markets for certain agricultural products, to lower prices of food imports and, in the latter part of the year, to intense competition among large retail chain stores. The rise in durable goods prices was centred on the first quarter.

The increase of 3.0 p.c. shown by the implicit price index for business gross fixed capital formation was notably lower than the 4.3 p.c. shown in 1969, the deceleration occurring in construction prices. The implicit price index for residential construction rose by 3.3 p.c. and that for non-residential construction by 4.2 p.c., compared with increases in 1969 of 5.3 p.c. and 6.3 p.c., respectively. The rise in the price of residential construction was due entirely to increased price of the labour component; in non-residential construction the prices of both labour and materials contributed to the increase. The price for machinery and equipment rose at 2.5 p.c., the same rate as in 1969.

**The Government Sector.**—Total revenues of all levels of government combined (excluding intergovernmental transfers) rose by just over 9 p.c. in 1970 from the level of the previous year, the smallest annual increase in several years. All categories, with the exception of corporate direct taxes, increased. More than half of the increase was accounted for by a 15-p.c. gain in revenue from personal direct taxes, the larger part of which took place at the federal level. Revenue from indirect taxes rose by over \$650,000,000 with the gain concentrated at the provincial and local government levels, due mainly to higher returns from retail sales, gasoline and property taxes; federal indirect taxes were virtually unchanged. The investment income of governments also rose during 1970 and was attributed mainly to higher interest receipts.

Total expenditures of all levels of government rose more than revenues, by over 13.5 p.c., with about two thirds of the increase due to higher outlays on goods and services. A significant part of this increase in goods and services took place at the provincial level, where a major factor was the medicare program which reflected a full year's operation in some provinces and its introduction during the year in other provinces. Transfer payments to persons rose by \$744,000,000 in 1970. At the federal level, the gain was due to higher



old age security pensions and unemployment insurance benefits, while at the provincial level there were higher transfers to post-secondary educational institutions and to benevolent associations.

With revenues rising less sharply than expenditures, the surplus of the government sector, on a national accounts basis, declined from \$2,208,000,000 in 1969 to \$1,278,000,000 in 1970. The Federal Government moved from a surplus of \$773,000,000 in 1969 to a deficit of \$12,000,000 in 1970 and the provincial government sector also moved to a deficit position. Local governments recorded a small surplus in 1970 and the surplus of the Canada and Quebec Pension Plans rose.

**1.—Gross National Product in Current and Constant (1961) Dollars,  
and Index of Gross National Expenditure in Constant (1961) Dollars, 1926-70**

Year	Gross National Product		Index of Gross National Expendi- ture in Constant (1961) Dollars (1961 = 100)	Year	Gross National Product		Index of Gross National Expendi- ture in Constant (1961) Dollars (1961 = 100)
	Millions of Current Dollars	Millions of Constant (1961) Dollars			Millions of Current Dollars	Millions of Constant (1961) Dollars	
1926.....	5,146	10,203	26.1	1949.....	16,300	22,119	56.6
1927.....	5,561	11,171	28.6	1950.....	17,955	23,809	60.9
1928.....	6,050	12,191	31.2	1951.....	21,060	25,004	64.0
1929.....	6,139	12,237	31.3	1952.....	24,042	27,398	70.1
1930.....	5,720	11,713	30.0	1953.....	25,327	28,862	73.9
1931.....	4,693	10,226	26.2	1954.....	25,233	28,283	72.4
1932.....	3,814	9,166	23.5	1955.....	27,895	31,079	79.5
1933.....	3,492	8,555	21.9	1956.....	31,374	33,780	86.4
1934.....	3,969	9,594	24.5	1957.....	32,907	34,710	88.8
1935.....	4,301	10,343	26.5	1958.....	34,094	35,462	90.7
1936.....	4,634	10,801	27.6	1959.....	36,266	36,929	94.5
1937.....	5,241	11,886	30.4	1960.....	37,775	37,994	97.2
1938.....	5,272	11,984	30.7	1961.....	39,080	39,080	100.0
1939.....	5,621	12,874	32.9	1962.....	42,353	41,778	106.9
1940.....	6,713	14,687	37.6	1963.....	45,465	43,996	112.6
1941.....	8,282	16,800	43.0	1964.....	49,783	47,050	120.4
1942.....	10,265	19,917	51.0	1965.....	54,897	50,149	128.3
1943.....	11,053	20,719	53.0	1966.....	61,421	53,650	137.3
1944.....	11,848	21,539	55.1	1967.....	65,722	55,517	142.1
1945.....	11,863	21,057	53.9	1968.....	71,388	58,259	149.1
1946.....	11,885	20,493	52.4	1969.....	78,560	61,214	156.6
1947.....	13,169	20,861	53.4	1970.....	84,468	63,210	161.7
1948.....	15,127	21,374	54.7				

**2.—National Income and Gross National Product, by Component, 1967-70**

(Millions of dollars)

Item	1967	1968 <sup>c</sup>	1969 <sup>c</sup>	1970
Wages, salaries and supplementary labour income.....	35,275	38,493	43,203	47,043
Military pay and allowances.....	839	860	898	906
Corporation profits before taxes <sup>1</sup> .....	6,774	7,442	7,852	7,364
Deduct: Dividends paid to non-residents <sup>2</sup> .....	-854	-827	-818	-906
Interest, and miscellaneous investment income <sup>3</sup> .....	2,335	2,571	3,187	3,614
Accrued net income of farm operators from farm production <sup>4</sup> .....	1,306	1,471	1,695	1,369
Net income of non-farm unincorporated business, incl. rent <sup>5</sup> .....	3,926	4,218	4,410	4,551
Inventory valuation adjustment.....	-323	-317	-549	-171
<b>Net National Income at Factor Cost.....</b>	<b>49,278</b>	<b>53,911</b>	<b>59,878</b>	<b>63,770</b>
Indirect taxes less subsidies.....	8,786	9,677	10,647	11,251
Capital consumption allowances and miscellaneous valuation adjustments.....	7,877	8,411	9,066	9,898
Residual error of estimate.....	-219	-611	-1,031	-451
<b>Gross National Product at Market Prices.....</b>	<b>65,722</b>	<b>71,388</b>	<b>78,560</b>	<b>84,468</b>

<sup>1</sup> Includes dividends paid to non-residents and excludes profits of government business enterprises. <sup>2</sup> Includes withholding tax. <sup>3</sup> Includes profits (net of losses) of government business enterprises and other government investment income. <sup>4</sup> Includes value of physical change in farm inventories. <sup>5</sup> Includes net income of independent professional practitioners.

**3.—Gross National Expenditure, 1967-70**

(Millions of dollars)

Item	1967	1968 <sup>r</sup>	1969 <sup>r</sup>	1970
Personal expenditure on consumer goods and services.....	38,998	42,360	46,531	48,995
Government current expenditure on goods and services.....	10,934	12,158	13,680	15,802
Gross fixed capital formation.....	15,684	15,809	17,242	17,961
Government.....	2,969	2,995	3,052	3,252
Business.....	12,715	12,814	14,190	14,709
Residential construction.....	2,809	3,254	3,243	3,537
Non-residential construction.....	4,533	4,542	4,773	6,253
Machinery and equipment.....	5,373	5,018	6,174	6,919
Value of physical change in inventories.....	408	741	1,043	122
Government.....	29	29	6	-13
Business—				
Non-farm.....	367	473	534	513
Farm and grain in commercial channels.....	12	239	503	-178
Exports of goods and services.....	14,713	16,719	18,468	20,969
Deduct: Imports of goods and services.....	-15,235	-17,010	-19,435	-19,533
Residual error of estimate.....	220	611	1,031	452
<b>Gross National Expenditure at Market Prices.....</b>	<b>65,722</b>	<b>71,388</b>	<b>78,560</b>	<b>84,468</b>

**4.—Gross National Expenditure in Constant (1961) Dollars, 1967-70**

(Millions of dollars)

Item	1967	1968 <sup>r</sup>	1969 <sup>r</sup>	1970
Personal expenditure on consumer goods and services.....	34,309	35,853	37,847	38,610
Government current expenditure on goods and services.....	8,225	8,539	8,816	9,661
Gross fixed capital formation.....	13,191	13,177	13,768	13,925
Government.....	2,436	2,453	2,417	2,500
Business.....	10,755	10,719	11,351	11,425
Residential construction.....	2,218	2,518	2,326	2,518
Non-residential construction.....	3,834	3,782	3,733	3,947
Machinery and equipment.....	4,703	4,419	4,787	4,960
Value of physical change in inventories.....	312	611	910	42
Government.....	22	23	3	-15
Business—				
Non-farm.....	307	481	456	260
Farm and grain in commercial channels.....	-17	107	451	-203
Exports of goods and services.....	12,941	14,507	15,672	17,226
Deduct: Imports of goods and services.....	-13,652	-14,931	-16,608	-16,599
Residual error of estimate.....	191	503	809	345
<b>Gross National Expenditure in Constant (1961) Dollars.....</b>	<b>55,517</b>	<b>58,259</b>	<b>61,214</b>	<b>63,210</b>

**5.—Year-to-Year Percentage Change in Gross National Expenditure, 1967-70**

Item	1967	1968 <sup>r</sup>	1969 <sup>r</sup>	1970
	p.c.	p.c.	p.c.	p.c.
Personal Expenditure on Consumer Goods and Services—				
Value.....	8.2	8.6	9.8	5.3
Volume.....	4.7	4.5	5.6	2.0
Price.....	3.4	3.9	4.1	3.3
Government Current Expenditure on Goods and Services—				
Value.....	11.3	11.2	12.5	15.5
Volume.....	4.1	3.8	3.2	9.6
Price.....	6.9	7.1	9.0	5.4

## 5.—Year-to-Year Percentage Change in Gross National Expenditure, 1967-70—concluded

Item	1967	1968 <sup>r</sup>	1969 <sup>r</sup>	1970
	p.c.	p.c.	p.c.	p.c.
<b>Gross Fixed Capital Formation—</b>				
Value.....	1.8	0.8	9.1	4.2
Volume.....	0.8	-0.1	4.5	1.1
Price.....	0.9	0.9	4.3	3.0
<b>Government—</b>				
Value.....	4.4	0.9	1.9	6.6
Volume.....	4.7	0.9	-1.7	3.4
Price.....	-0.3	-0.1	3.7	3.0
<b>Business—</b>				
Value.....	1.2	0.8	10.7	3.7
Volume.....	—	-0.3	5.9	0.7
Price.....	1.2	1.1	4.6	3.0
<b>Residential Construction—</b>				
Value.....	7.7	15.8	18.1	-8.0
Volume.....	1.3	13.5	12.2	-10.9
Price.....	6.2	2.1	5.3	3.3
<b>Non-residential Construction—</b>				
Value.....	-2.5	0.2	5.1	10.1
Volume.....	-3.0	-1.4	-1.2	5.6
Price.....	0.5	1.6	6.3	4.2
<b>Machinery and Equipment—</b>				
Value.....	1.3	-6.6	11.1	6.2
Volume.....	1.9	-6.0	8.3	3.6
Price.....	-0.6	-0.5	2.5	2.5
<b>Exports of Goods and Services—</b>				
Value.....	12.4	13.6	10.5	13.5
Volume.....	10.5	12.1	8.0	9.9
Price.....	1.8	1.3	2.3	3.3
<b>Imports of Goods and Services—</b>				
Value.....	6.8	11.7	14.3	2.0
Volume.....	4.7	9.4	11.2	-0.1
Price.....	2.0	2.1	2.7	2.1
<b>Gross National Expenditure at Market Prices—</b>				
Value.....	7.0	8.6	10.0	7.5
Volume.....	3.5	4.9	5.1	3.3
Price.....	3.4	3.5	4.7	4.1

## 6.—Personal Income, by Source and by Province, 1967-70

(Millions of dollars)

Source and Province	1967	1968 <sup>r</sup>	1969 <sup>r</sup>	1970
<b>Source</b>				
Wages, salaries and supplementary labour income.....	35,275	38,493	43,203	47,043
Military pay and allowances.....	839	860	898	906
Net income received by farm operators from farm production.....	1,379	1,690	1,644	1,162
Net income of non-farm unincorporated business including rent.....	3,926	4,218	4,410	4,551
Interest, dividends and miscellaneous investment income.....	3,981	4,378	4,961	5,400
<b>Current Transfers (excl. interest)—</b>				
From Government—				
Transfer payments to persons.....	4,640	5,346	6,060	6,804
Capital assistance.....	5	6	4	3
From corporations (charitable contributions and bad debt allowances).....	120	127	127	134
From non-residents.....	43	95	91	97
<b>Totals, Personal Income.....</b>	<b>50,208</b>	<b>55,213</b>	<b>61,398</b>	<b>66,100</b>

**6.—Personal Income, by Source and by Province, 1967-70—concluded**  
(Millions of dollars)

Source and Province	1967	1968 <sup>c</sup>	1969 <sup>c</sup>	1970
<b>Province</b>				
Newfoundland.....	699	755	831	924
Prince Edward Island.....	165	186	201	215
Nova Scotia.....	1,442	1,576	1,759	1,901
New Brunswick.....	1,078	1,192	1,305	1,420
Quebec.....	13,140	14,276	15,750	16,893
Ontario.....	20,315	22,385	25,120	27,370
Manitoba.....	2,318	2,581	2,783	2,939
Saskatchewan.....	2,001	2,300	2,414	2,252
Alberta.....	3,604	4,056	4,555	4,919
British Columbia.....	5,244	5,689	6,449	7,037
Yukon and Northwest Territories.....	96	106	122	128
Foreign Countries <sup>1</sup> .....	106	111	109	102

<sup>1</sup> Income of Canadians temporarily abroad, including pay and allowances of Canadian Armed Forces abroad.

**7.—Disposition of Personal Income, 1967-70**  
(Millions of dollars)

Item	1967	1968 <sup>c</sup>	1969 <sup>c</sup>	1970
Personal expenditure on consumer goods and services.....	38,998	42,360	46,531	48,995
Current Transfers—				
To Government—				
Income taxes.....	4,904	5,922	7,469	8,779
Succession duties and estate taxes.....	215	235	237	257
Employer and employee contributions to social insurance and government pension funds.....	1,892	2,090	2,341	2,420
Other.....	405	539	794	1,049
To corporations (transfer portion of interest on the consumer debt)....	360	398	460	484
To non-residents.....	138	111	132	141
Personal saving.....	3,296	3,558	3,434	3,975
<b>Totals, Personal Income.....</b>	<b>50,208</b>	<b>55,213</b>	<b>61,398</b>	<b>66,100</b>

**8.—Personal Expenditure on Consumer Goods and Services, 1967-70**  
(Millions of dollars)

Item	1967	1968 <sup>c</sup>	1969 <sup>c</sup>	1970
Food and non-alcoholic beverages.....	6,730	7,143	7,634	8,091
Tobacco and alcoholic beverages.....	2,414	2,542	2,715	2,901
Clothing, footwear and accessories.....	3,155	3,338	3,579	3,650
Gross rent, fuel and power.....	6,896	7,579	8,376	9,290
Furniture, furnishing and household equipment and operation.....	2,949	3,068	3,311	3,407
Transportation.....	4,806	5,216	5,496	5,382
Medical care and health services.....	1,619	1,795	1,743	1,435
Other.....	10,429	11,679	13,677	14,839
<b>Totals.....</b>	<b>38,998</b>	<b>42,360</b>	<b>46,531</b>	<b>48,995</b>
Durables.....	5,058	5,509	5,920	5,594
Semi-durables.....	4,298	4,567	4,992	5,119
Non-durables.....	15,270	16,443	17,931	19,410
Services.....	14,372	15,841	17,688	18,872



**9.—Federal, Provincial and Local Government Revenue and Expenditure,<sup>1</sup> 1967-70**

(Millions of dollars)

Item	1967	1968	1969*	1970
<b>Revenue</b>				
Direct Taxes: Persons—				
Income taxes.....	4,904	5,922	7,469	8,779
Succession duties and estate taxes.....	215	235	237	257
Employer and employee contributions to social insurance and government pension funds.....	1,892	2,090	2,341	2,420
Other current transfers.....	405	539	794	1,049
Direct taxes: corporate and government business enterprises.....	2,397	2,809	3,070	2,854
Direct taxes: non-residents (withholding taxes).....	218	209	232	267
Indirect taxes.....	9,442	10,320	11,322	11,975
Investment Income—				
Interest and royalties.....	1,212	1,333	1,614	1,999
Remitted profits of government business enterprises.....	221	244	431	455
<b>Totals, Revenue.....</b>	<b>20,906</b>	<b>23,701</b>	<b>27,510</b>	<b>30,055</b>
<b>Current Expenditure</b>				
Purchases of goods and services.....	10,934	12,158	13,680	15,802
Transfer payments to persons.....	4,640	5,346	6,060	6,804
Current transfers to non-residents.....	216	170	184	244
Interest on the public debt.....	1,974	2,268	2,621	3,030
Capital assistance.....	74	86	107	124
Subsidies.....	656	643	675	724
Saving.....	2,412	3,030	4,183	3,327
<b>Totals, Current Expenditure.....</b>	<b>20,906</b>	<b>23,701</b>	<b>27,510</b>	<b>30,055</b>
<b>Surplus on Deficit</b>				
(on a national accounts basis)				
Saving.....	2,412	3,030	4,183	3,327
Add: Capital consumption allowances.....	921	988	1,083	1,190
Deduct: Gross capital formation.....	-2,998	-3,024	-3,058	-3,239
<b>Equals: Surplus.....</b>	<b>335</b>	<b>994</b>	<b>2,208</b>	<b>1,278</b>

<sup>1</sup> Excludes current transfers from other levels of government.**10.—Analysis of Corporation Profits, 1967-70**

(Millions of dollars)

Item	1967	1968*	1969*	1970
Corporation profits before taxes and before dividends paid to non-residents.....	6,774	7,442	7,852	7,364
Deduct: Corporation income tax liabilities.....	-2,379	-2,794	-3,044	-2,830
Deduct: Excess of tax liabilities over collections.....	-38	235	601	553
Deduct: Tax collections.....	2,417	2,559	3,645	3,383
Corporation profits after taxes.....	4,395	4,648	4,808	4,534
Deduct: Dividends paid to non-residents.....	-854	-827	-818	-906
Corporation profits retained in Canada.....	3,541	3,821	3,990	3,628
Deduct: Dividends paid to Canadian residents.....	-959	-988	-1,050	-1,060
Deduct: Charitable contributions.....	-75	-79	-80	-83
Deduct: Bad debts.....	-45	-48	-47	-51
<b>Undistributed Corporation Profits.....</b>	<b>2,462</b>	<b>2,706</b>	<b>2,813</b>	<b>2,434</b>

### 11.—Corporation Profits before Taxes and before Dividends Paid to Non-residents, by Industry, 1967-70

(Millions of dollars)

Industry	1967	1968	1969	1970
Agriculture.....	17	22	24	22
Forestry.....	11	15	16	15
Fishing and trapping.....	1	—	—	—
Mines, quarries and oil wells.....	871	960	1,013	950
Manufacturing.....	2,669	2,932	3,094	2,901
Construction.....	282	313	330	309
Transportation.....	312	342	361	339
Storage.....	20	22	24	22
Communication.....	268	290	306	287
Electric power, gas and water utilities.....	117	127	133	125
Wholesale trade.....	535	588	620	582
Retail trade.....	460	491	518	486
Finance, insurance and real estate.....	925	1,012	1,068	1,002
Community, business and personal service.....	296	328	345	324
<b>Totals.....</b>	<b>6,774</b>	<b>7,442</b>	<b>7,852</b>	<b>7,364</b>

## Section 2.—Financial Flow Accounts

The financial flow accounts, introduced in 1969, provide a detailed exposition of financial activity in the Canadian economy within an integrated macro-economic accounting system. Financial transactions of the various sectors of the economy are brought into explicit statistical relationship with one another while the structure of the system provides a direct linking of financial data to production statistics in each sector of the economy. The presentation of financial statistics for the whole economy allows developments in any sector to be viewed in relation to other sectors or in relation to the entire economy. The simultaneous linking of financial and production statistics provides a statistical framework appropriate to investigation of the interrelationships of financial markets and markets for goods and services. The presentation of financial and production statistics within the framework of a balancing set of accounts has the additional benefit of exposing gaps in statistical coverage and providing a quality check on existing statistics.

The financial flow accounts focus on the sectors of the economy associated with the income and expenditure accounts (i.e., personal, business, government and foreign sectors) but provide a considerably more detailed articulation. The system describes 41 sectors and subsectors, more than half of which are devoted to the various types of financial institutions. Sector financial transactions are described in terms of 50 categories of financial assets and liabilities such as loans, bonds and mortgages. The balancing and internal consistency of the system is based on two important identity relationships. First, for the total economy, saving and investment are equal and changes in financial assets are equal to changes in financial liabilities. Secondly, in every sector, the excess of investment over saving or vice versa must be matched by offsetting changes in financial assets and/or financial liabilities. The first relationship ensures a balanced system while the second relationship ensures internal consistency.

Basically, what the accounts do is show the saving available from current revenue less current expenditure for each sector; non-financial capital formation undertaken by the sector is charged against the saving, leaving the net lending or borrowing requirements of each sector; the means by which funds flow between borrowing and lending sectors are shown by the presentation of net changes in the liabilities and assets of each sector. These changes are frequently referred to as the source and use of funds respectively. The system reveals the important role of financial institutions in providing the link between borrowers and lenders by accepting deposits, for example, which may be highly liquid and yield low interest rates to the depositor. These funds deposited with a financial institution are in turn re-loaned in the form of loans with quite different liquidity and yield characteristics.

A summary matrix of the financial flow system is presented in Table 12. More detailed quarterly data for individual sectors and summary matrices are available.

## 12.—Financial Flow Matrix, by Economy

(Millions)

Category No.	Transaction Category	Sector				
		I Persons	II Unincorporated Business	III Non-financial Private Corporations	IV Non-financial Government Enterprises	V The Monetary Authorities
1100	<b>Gross Domestic Saving</b> .....	3,975	3,488	6,664	878	—
1101	Residual error of estimate, income and expenditure accounts.....	—	—	—	—	—
1200	Capital consumption allowances and miscellaneous valuation adjustments.....	—	3,281 207	4,681 1,983	661 217	—
1400	Net domestic saving.....	3,975	—	—	—	—
1500	<b>Non-financial Capital Acquisition</b> .....	-367	3,965	8,734	1,933	—
1501	Residual error of estimate, income and expenditure accounts.....	—	—	—	—	—
1600	Gross fixed capital formation.....	—	3,942	8,501	2,095	—
1700	Value of physical change in inventories.....	—	23	275	-163	—
1800	Net purchases of existing and intangible assets.....	-367	—	-42	1	—
1900	<b>Net Lending or Borrowing (1100-1500)</b> .....	4,342	-477	-2,070	-1,055	—
2000	<b>Net Financial Investment (2100-3100)</b> .....	2,508	-477	-1,103	-703	—
2100	<b>Net Increase in Financial Assets</b> .....	3,178	852	1,867	220	2,174
2210	Official International Reserves—	—	—	—	—	—
2211	Official holdings of gold and foreign exchange.....	—	—	—	—	1,277
2212	International Monetary Fund, general account.....	—	—	—	—	19
2213	Special Drawing Rights.....	—	—	—	—	19
2310	Currency and Deposits—	—	—	—	—	—
2311	Currency and bank deposits.....	2,480	—	46	96	—
2312	Deposits in other institutions.....	1,537	—	99	5	—
2313	Foreign currency and deposits.....	283	—	-139	-41	—
2320	Receivables—	—	—	—	—	—
2321	Consumer credit.....	—	-15	28	—	—
2322	Trade.....	—	—	994	64	—
2330	Loans—	—	—	—	—	—
2331	Bank loans.....	—	—	—	—	—
2332	Other loans.....	—	—	-44	66	-1
2340	Government of Canada treasury bills.....	100	—	-76	11	144
2350	Finance company and other short-term commercial paper.....	-944	—	90	-1	-8
2410	Mortgages.....	—	—	-21	—	—
2420	Bonds—	—	—	—	—	—
2421	Government of Canada bonds.....	319	—	-8	34	40
2422	Provincial government bonds.....	-131	—	—	1	—
2423	Municipal government bonds.....	-25	—	—	1	—
2424	Other Canadian bonds.....	74	—	-32	-10	—
2430	Life insurance and pensions.....	1,743	—	—	—	—
2510	Claims on Associated Enterprises—	—	—	—	—	—
2511	Non-corporate.....	-1,532	—	—	—	—
2512	Corporate.....	—	—	847	-6	—
2513	Government.....	—	—	—	1	66
2520	Stocks.....	-747	—	-71	1	—
2530	Foreign investments.....	21	—	-7	5	—
2610	Other financial assets.....	—	867	161	-7	267
2700	Official monetary reserve offsets.....	—	—	—	—	—
3100	<b>Net Increase in Liabilities</b> .....	670	1,329	2,970	923	2,174
3210	Official International Reserves—	—	—	—	—	—
3211	Official holdings of gold and foreign exchange.....	—	—	—	—	—
3212	International Monetary Fund, general account.....	—	—	—	—	—
3213	Special Drawing Rights.....	—	—	—	—	—
3310	Currency and Deposits—	—	—	—	—	—
3311	Currency and bank deposits.....	—	—	—	—	420
3312	Deposits in other institutions.....	—	—	—	—	—
3313	Foreign currency and deposits.....	—	—	—	—	—

## Sector and by Category of Transaction, 1970

(dollars)

Sector											Category No.
VI(1)	VI(2)	VII	VIII	IX	X	XI	XII	XIII	XIV	Total	
Chartered Banks	Other Lending Institutions	Insurance Companies and Pension Funds	Other Private Financial Institutions	Public Financial Institutions	Federal Government	Provincial and Municipal Governments	Social Security Funds	Rest of the World	Residual Error of Estimate, Income and Expenditure Accounts		
180	126	91	88	93	525	2,848	1,144	-1,115	-451	18,535	1100
—	—	—	—	—	—	—	—	—	-451	-451	1101
38	28	17	1	—	230	960	—	—	—	9,898	1200
142	98	74	87	93	295	1,888	1,144	-1,115	—	9,088	1400
59	26	50	4	36	532	2,911	—	164	452	18,535	1500
—	—	—	—	—	—	—	—	—	452	452	1501
69	31	49	3	13	550	2,702	—	—	—	17,961	1600
—	—	—	—	—	-13	—	—	—	—	122	1700
-10	-5	31	1	23	-5	209	—	164	—	—	1800
121	100	11	84	57	-7	-63	1,144	-1,279	-903	—	1900
106	96	11	83	37	33	-439	1,144	-1,297	—	—	2000
2,918	1,558	2,012	528	1,276	2,375	1,439	1,144	1,106	—	22,648	2100
—	—	—	—	—	—	—	—	—	—	1,270	2210
—	—	—	—	—	—	—	—	—	—	199	2212
—	—	—	—	—	—	—	—	—	—	193	2213
68	287	245	-14	-12	90	95	—	26	—	3,407	2310
—	-11	8	-3	8	—	-21	—	-4	—	1,618	2311
—	75	-1	-80	—	2	20	—	—	—	119	2313
506	-93	99	27	—	—	—	—	—	—	552	2320
—	—	-11	-21	24	—	83	—	—	—	1,133	2321
206	—	—	—	—	—	—	—	—	—	206	2330
—	-95	3	81	325	131	60	—	—	—	409	2331
602	-47	-15	84	2	7	-9	—	-117	—	730	2332
—	200	55	167	3	-10	—	—	-73	—	-134	2340
132	1,071	332	40	487	23	202	—	309	—	2,266	2350
932	-65	29	11	58	-55	-29	—	—	—	2,266	2410
98	59	387	65	182	-8	-84	4	-150	—	1,120	2420
9	64	89	-2	13	11	241	863	410	—	1,842	2421
166	29	428	49	72	4	192	—	-8	—	393	2422
—	—	—	—	—	—	—	—	430	—	1,402	2423
—	—	—	—	—	—	—	—	—	—	1,743	2424
—	—	—	—	—	—	—	—	—	—	—	2430
70	8	-7	27	—	—	—	—	—	—	-1,532	2510
—	—	—	—	—	—	—	—	—	—	1,532	2511
—	-4	401	134	46	2,558	348	258	705	—	1,644	2512
—	-30	4	-34	—	26	20	—	-82	—	3,259	2513
129	110	-34	-3	40	-32	—	—	—	—	-276	2520
—	—	—	—	—	-372	321	19	-339	—	-73	2530
—	—	—	—	—	—	—	—	-1	—	1,159	2610
—	—	—	—	—	—	—	—	—	—	-1	2700
1,812	1,462	2,001	445	1,239	2,342	1,878	...	2,403	—	22,648	3100
—	—	—	—	—	—	—	—	—	—	—	3210
—	—	—	—	—	—	—	—	1,270	—	1,270	3211
—	—	—	—	—	—	—	—	199	—	199	3212
—	—	—	—	—	—	—	—	193	—	193	3213
962	—	—	—	—	25	—	—	—	—	3,407	3310
—	1,611	—	6	2	-1	—	—	—	—	1,618	3311
—	—	—	—	—	—	—	—	—	—	119	3312
—	—	—	—	—	—	—	—	119	—	119	3313



## 12.—Financial Flow Matrix, by Economy

(Million)

Category No.	Transaction Category	Sector				
		I Persons	II Unincorporated Business	III Non-financial Private Corporations	IV Non-financial Government Enterprises	V The Monetary Authorities
	<b>Net Increase in Liabilities—concluded</b>					
3320	Payables—					
3321	Consumer credit.....	552	—	—	—	—
3322	Trade.....	—	813	298	32	—
3330	Loans—					
3331	Bank loans.....	118	96	39	-203	—
3332	Other loans.....	—	-265	97	14	—
3340	Government of Canada treasury bills.....	—	—	—	—	—
3350	Finance company and other short-term commercial paper.....	—	—	40	—	—
3410	Mortgages.....	—	2,217	60	-10	—
3420	Bonds—					
3421	Government of Canada bonds.....	—	—	—	-9	—
3422	Provincial government bonds.....	—	—	—	557	—
3423	Municipal government bonds.....	—	—	—	—	—
3424	Other Canadian bonds.....	—	—	1,202	—	—
3430	Life insurance and pensions.....	—	—	—	—	—
3510	Claims on Associated Enterprises—					
3511	Non-corporate.....	—	-1,532	—	—	—
3512	Corporate.....	—	—	473	—	—
3513	Government.....	—	—	—	553	1,64
3520	Stocks.....	—	—	665	—	—
3530	Foreign investments.....	—	—	—	—	—
3610	Other liabilities.....	—	—	96	-11	11
3700	Official monetary reserve offsets.....	—	—	—	—	—
4000	<b>Discrepancy (1900-2000).....</b>	<b>1,834</b>	<b>—</b>	<b>-967</b>	<b>-352</b>	<b>—</b>

The economy entered 1970 under the most stringent financial circumstances of the postwar experience. Interest rates had reached record levels, chartered bank liquidity was severely depressed and a tight monetary policy, introduced the previous spring, was still in effect. During the spring quarter, economic events and policy changes promoted an easing of credit conditions which continued beyond the year-end. Interaction between foreign and domestic economic forces influenced to an important degree the timing and magnitude of domestic credit easing.

The general easing of credit conditions in 1970 was reflected in a substantial increase of new funds supplied to the economy. Easier monetary policy and increased personal saving saw a sharply higher level of funds supplied to the economy by the chartered banks and the personal sector. Financial institutions other than banks contributed less to credit expansion in 1970 than in the previous year, primarily because of reduced demand for short-term borrowing from these institutions.

The demand for funds shifted sharply toward longer-term financing instruments in response to corporations' liquidity requirements and Federal Government cash needs. Bonds and claims on associated enterprises were the primary sources of expanded long-term financing in 1970. Demand for short-term financing, on the other hand, was reduced decisively. Largely in response to weak demand by corporations and consumers, new funds demanded via loans, short-term commercial paper and consumer credit amounted to only \$1,000,000,000 compared to \$4,200,000,000 in the previous year.

## Sector and by Category of Transaction, 1970—concluded

of dollars)

Sector											Category No.
VI(1) Chart- ered Banks	VI (2) Other Lending Insti- tutions	VII Insur- ance Com- panies and Pension Funds	VIII Other Private Financial Insti- tutions	IX Public Financial Insti- tutions	X Federal Govern- ment	XI Provin- cial and Munic- ipal Govern- ments	XII Social Security Funds	XIII Rest of the World	XIV Residual Error of Estimate, Income and Expendi- ture Accounts	Total	
—	—	—	—	—	—	—	—	—	—	552	3320
—	—3	16	—6	10	12	—39	—	—	—	1,133	3321
—	—154	—	342	9	—	—41	—	—	—	206	3322
—1	—38	—	31	18	—54	355	—	242	—	409	3330
—	—140	—	—34	—	730	—	—	—	—	730	3331
—	—1	—	—	—	—	—	—	—	—	—134	3332
—	—	—	—	—	—	—	—	—	—	730	3340
—	—	—	—	—	—	—	—	—	—	2,266	3350
—	—	—	—	—	1,129	—	—	—	—	1,120	3410
—	—	—	—	103	—	1,182	—	—	—	1,842	3420
—	—	—	—	—	—	393	—	—	—	393	3422
—	118	—	77	—	—	5	—	—	—	1,402	3423
—	—	1,749	—	—	—6	—	—	—	—	1,743	3424
—	—	—	—	—	—	—	—	—	—	—	3430
—	—67	57	4	—	—	—	—	—	—	—1,532	3510
—	—	—	—	—	—	—	—	215	—	682	3511
—	—	—	—	1,033	20	9	—	—	—	3,259	3512
18	81	8	—86	—	—	—	—	—	—	686	3513
—167	55	171	111	64	487	4	—	—73	—	—73	3520
—	—	—	—	—	—	—	—	238	—	1,159	3530
—	—	—	—	—	—	—	—	—	—	—1	3610
15	4	—	1	20	—40	376	—	18	—903	—	3700
											4000

Policies of restraint directed toward the inflation problem placed increasing pressures on corporate liquidity during the latter 1960s. The severity of the corporate liquidity squeeze was underlined by the Penn Central collapse of June 1970. As credit conditions improved in 1970, corporations in Canada and the United States placed increasing demands on long-term credit markets to the virtual exclusion of short-term borrowing. Large net bond issues replaced bank loans as the major source of external funds. Bank loans to corporations increased only marginally in 1970 and notable retirements took place in the latter part of the year. This large shift in corporate financing from short- to long-term instruments was a prime factor influencing the atypical yield spreads that developed during the year. In addition, the slow growth of consumer goods expenditure, particularly durables, reduced the demand for short-term funds to finance consumer credit.

Canadian short-term interest rates fell precipitously during 1970 while long-term rates changed little until late in the year. Broadly similar interest-rate developments also occurred in the United States and Europe. An exceptional spread between long- and short-term interest rates developed during the year. The average spread between long-term Government of Canada bonds and treasury bills increased from 0.7 p.c. in the first quarter to 2.9 p.c. in the fourth quarter. A long-to-short-term-rate spread of similar magnitude and timing developed in the United States. A marked preference for long-term financing by corporations and a sluggish demand for consumer credit were probably the more important factors influencing very wide yield spreads in North America.

The easing of credit conditions that commenced in the spring of 1970 was associated with a sharp and sustained acceleration in the rate of growth of monetary aggregates. During the 12-month period up to March 1970, the money supply had increased only marginally. In the following 12-month period up to March 1971, the broadly defined money supply registered an advance of 14.6 p.c.

A sharply increased flow of funds into the banking system during 1970 was accompanied by a restructuring of asset holdings in favour of more liquid assets. Deposit inflows increased by \$3,000,000,000, nearly three times the modest 1969 advance. Government of Canada bond and treasury bill holdings were increased by \$1,500,000,000 compared with a \$500,000,000 redemption in 1969. On the other hand, bank loans (excluding consumer credit) increased by only \$200,000,000 compared to a \$1,400,000,000 advance in 1969.

The very small increase in 1970 bank loans was in large measure a reflection of the preference of corporations for longer-term financing. Continued large extensions of consumer credit were made by chartered banks while other lending institutions experienced net redemptions of consumer loans. As the availability of chartered bank funds increased during the year, it appears that consumers were able to avail themselves of the generally more favourable consumer credit rates offered by the banks.

Corporation financing had a pervasive influence on capital markets in 1970, reflected in part by an exceptionally large spread between long- and short-term interest rates. A dramatic shift from long- to short-term financing dominated the picture. The term structure rather than the level of corporate demands was the decisive factor. Net borrowing requirements actually declined slightly in 1970. Demands in respect of non-financial capital acquisition were almost unchanged while gross domestic saving increased slightly.

The liquidity position of corporations, which had been severely squeezed in 1969, was substantially improved in 1970. A small increase in short-term obligations was more than offset by increased short-term asset holdings. On the other hand, net long-term funding amounted to \$1,600,000,000, of which bond financing was the major source of funds.

Federal Government borrowing increased sharply in 1970, particularly during the latter part of the year. Cash requirements in respect of the exchange fund account presented the dominant financing requirement. In addition, the fiscal impact of slow economic growth and more expansionary expenditure and transfer outlays added to borrowing requirements. Government of Canada bond and treasury bill financing increased from \$600,000,000 to \$1,900,000,000 between 1969 and 1970. Provincial and municipal government borrowing was almost unchanged in 1969 and 1970 at \$1,900,000,000.

Federal Government borrowing has a pervasive impact on domestic bond and short-term financial markets. As a proportion of total bond market financing, Federal Government participation increased from 14.2 p.c. to 23.7 p.c. Federal Government treasury bill issues dominated short-term borrowing activity which was sharply reduced in 1970.

The current account recorded an increasing surplus in each of the four quarters of 1970 which cumulated to an exceptional \$1,300,000,000 favourable balance. The wide movement of the current account balance, from a deficit of \$800,000,000 in 1969 to a surplus of \$1,300,000,000 in 1970, created a need for substantial adjustments to capital flows. A small reduction of the traditional surplus on capital account was only partially compensating and large inflows of foreign exchange resulted, particularly in the first half of the year. Official holdings of international reserves rose by \$1,700,000,000, of which \$1,300,000,000 was accumulated in the first half of the year. Official actions from mid-year, including a temporary unpegging of the Canadian dollar and requests to limit foreign borrowings, acted to reduce capital inflows.

### Section 3.—Domestic Product by Industry

#### Indexes of Real Domestic Product\*

Statistics Canada has since the early 1960s released a set of production data pertaining to the entire spectrum of Canadian industries in its industry detail. These data, in the form of volume of production indexes, are measures of value added for each industry expressed in the dollars of a base year. Technically, they are termed "indexes of real domestic product (RDP) at factor cost originating by industry". The value added, or RDP, volume indexes can be regarded as an extension of the index of industrial production to encompass the remainder of the economy. Concepts and basic methods used to construct both indexes are the same. Thus, industry production index coverage has been extended from mining, manufacturing and electric power and gas utilities, for which volume indexes have been published since the 1920s, to include all other major industrial divisions. The RDP indexes can also be regarded as an elaboration of the supply side of the national income and expenditure accounts.

When measuring the output of a single product such as steel, it is normal to think in terms of tons of steel when the question of quantity arises. When measuring the combined production of steel and natural gas, there is an obvious need for a common denominator and it is appropriate to use the average unit prices of a certain time period (chosen as the base) to value the quantities produced before adding them together. The resultant gross quantity, volume or output measure can be subsequently left in its constant or base period dollar form or it can be expressed in index number form. The latter is accomplished by dividing the constant dollar aggregate of the current period by the dollar aggregate for the base period and multiplying by 100. In constructing a quantity index for a combination of industries where the output of one industry becomes the input of another, the portion double-counted must be eliminated. This is accomplished by revaluing both intermediate input (materials, fuel, advertising, etc.) and gross output in terms of the dollars of a common base year and subtracting the constant dollar value of the former from the latter to yield a constant dollar value added aggregate. This aggregate is the quantity or volume measure represented by the indexes presented herein.

The annual indexes are well suited for studies of production trends, growth rates and inter-industry comparisons, but monthly indexes provide a much better tool for the study of the cyclical behaviour of industries, short-term changes in production and, in fact, for most types of current analysis. Statistics computed for less than annual intervals, however, are frequently subject to strong seasonal influences, and variations in the number of working days during a month may cause differences in the levels of output between two months that otherwise would not exist. Accordingly, the sub-annual real output indexes have been adjusted for both seasonal and calendar variation.

**Real Domestic Product: Recent Performance.**—Spurred by strong domestic and foreign demand throughout most of the decade since 1961 for the goods and services produced by Canadian industries, total real output in the 1961-70 period achieved an average annual rate of gain of 5.6 p.c., in contrast to the average rate of growth of 4.7 p.c. in the 1946-61 period. Domestic demand has been influenced by demographic factors operating in the post World War II years; younger age groups are displaying both their purchasing power and changing tastes. Buoyant foreign demand for Canadian commodities has been a dominant force since 1961, with sales of wheat and motor vehicles and parts having recorded the most dramatic gains over the past ten years. Within this period, a generally healthy investment climate has prevailed. Both residential and non-residential construction made good gains, particularly up to 1966. Government current expenditures on goods

\* *Indexes of Real Domestic Product by Industry, 1961-1969, 1961=100*, Statistics Canada Occasional Paper (Catalogue No. 61-510), for 1961-1967. For the period 1935-60, see *Indexes of Real Domestic Product by Industry, 1961 Base* (Catalogue No. 61-506). For a detailed explanation of concepts, methods and limitations, see *Indexes of Real Domestic Product by Industry of Origin, 1935-61* (Catalogue No. 61-505) and *Revised Index of Industrial Production, 1935-57* (Catalogue No. 61-502). Current data on annual, quarterly and monthly bases are published in Statistics Canada monthly *Indexes of Real Domestic Product by Industry (Including the Index of Industrial Production)* (Catalogue No. 61-005).



and services have also expanded substantially. The durable manufacturing sector was particularly dynamic in response to both domestic and external demands.

The influx of the postwar generation is also reflected in the rapid increase in the labour force. Over most of the period, the expanding economy generated sufficient employment opportunities to adequately absorb the increases in the labour force. Some slackness in the over-all economy developed in the latter part of the 1960s, with the result that, among other things, the growth in labour force employment has tended to fall below the rate of increase in the labour force itself.

The deceleration of the growth of the economy continued in 1970, as shown in Table 13.

**13.—Annual Growth Rates of Real Domestic Product, by Industry, 1961-70**

Industry	1961-70 <sup>1</sup>	1968-69	1969-70
	p.c.	p.c.	p.c.
Agriculture.....	1.2	3.1	-3.8
Forestry.....	4.2	8.3	2.8
Fishing and trapping.....	1.6	-11.4	2.0
Mines (incl. milling), quarries and oil wells.....	5.9	-1.0	15.9
Manufacturing.....	6.4	5.2	-0.9
Non-durables manufacturing.....	5.0	5.2	1.4
Durables manufacturing.....	7.9	5.2	-3.0
Construction.....	5.2	2.6	-2.0
Electric power, gas and water utilities.....	7.7	9.3	7.8
Transportation, storage and communication.....	6.4	5.3	7.1
Transportation.....	6.7	4.9	6.5
Trade.....	5.7	4.8	1.3
Wholesale trade.....	7.0	6.0	3.4
Retail trade.....	4.8	3.9	-0.1
Finance, insurance and real estate.....	4.2	4.1	2.6
Community, business and personal service industries.....	6.8	5.8	4.2
Public administration and defence.....	2.8	1.8	2.8
<b>Real Domestic Product.....</b>	<b>5.6</b>	<b>4.5</b>	<b>2.4</b>

<sup>1</sup> Based on the least squares of logarithms method.

As can be seen from Table 14, manufacturing and, in particular, durables manufacturing, has been a leading contributor to the growth of the Canadian economy over most of the period. The burgeoning motor vehicles and motor-vehicle parts industries have been prime movers behind the rapid increase in the output of durables. A severe interruption in the strong upward trend in motor vehicle production first occurred early in 1966 and persisted until the second quarter of 1967. It has been variously attributed to changes in the general economic condition in North America and specifically to the 1966 credit squeeze and the upward climb of prices plus consumer concern about car safety. Since 1968, production has been hit, directly or indirectly, by strikes and parts shortages and, in 1970, output declined markedly as a result of a slump in consumer spending compounded by the impact of the automobile strike in the latter part of the year.

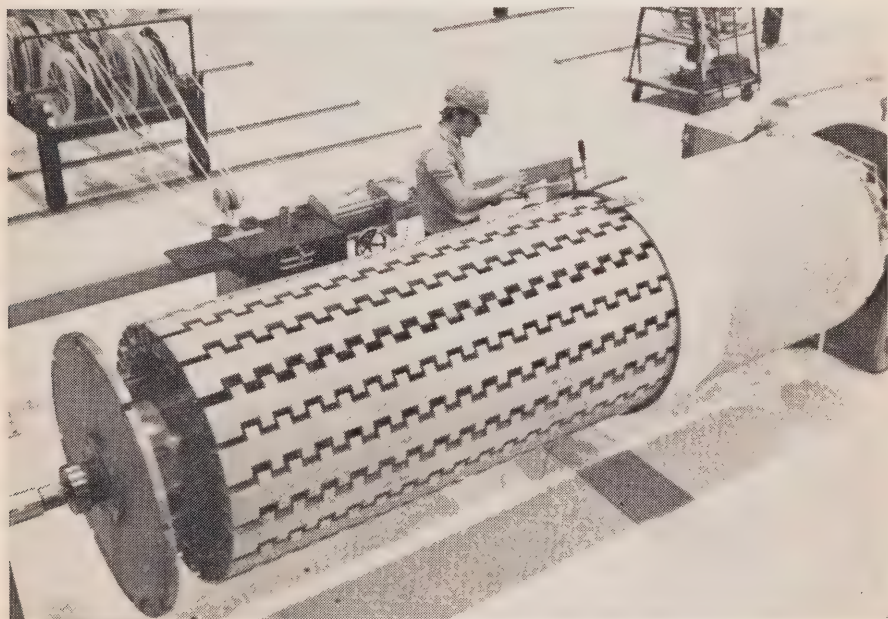
The performance of the construction industry has been a conspicuous feature of the economy. Heavy injections of industrial capital took place in the mid-1960s to develop additional facilities or expand capacity. Pace-setters were such industries as petroleum and coal products, chemicals, pulp and paper, and electric power. Outlays for social capital such as hospitals and educational institutions also forged ahead. Construction projects commemorating Canada's 1967 Centennial and Expo 67 provided an extra fillip. However, since 1967, tightened monetary conditions, rising costs, a mid-1969 decision to defer capital-cost allowances on commercial projects in some areas, and strikes in both 1969 and 1970, have all restrained output in this sector. Residential construction tends to be one of the more volatile sectors of the economy. The relevant demographic factors have indicated that a solid demand for housing exists. However, less favourable supply conditions such as scarcity of mortgage funds and rising interest rates and construction costs have, from time to time, adversely affected residential construction, particularly in 1966, the latter half of 1969 and most of 1970. The strikes in 1970 exacerbated the situation;

however, increased availability of both private and public mortgage funds in the latter part of the year prompted a sharp upswing, which brought the output by year-end to a level approaching previous peaks.

#### 14.—Contribution to the Percentage Change in Real Domestic Product, by Industry, 1961-70

Industry	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
Agriculture, forestry and fishing.....	-0.8	1.1	0.6	-0.4	0.1	0.7	-0.9	0.2	0.2	-0.1
Mines (incl. milling), quarries and oil wells...	0.1	0.3	0.2	0.6	0.2	0.1	0.3	0.3	—	0.7
Manufacturing.....	1.0	2.2	1.7	2.5	2.4	1.9	0.6	1.8	1.4	-0.2
Non-durables manufacturing.....	0.6	0.8	0.6	1.1	0.7	0.8	0.3	0.7	0.7	0.2
Durables manufacturing.....	0.4	1.4	1.1	1.4	1.7	1.1	0.3	1.1	0.7	-0.4
Construction.....	0.2	0.3	0.1	0.5	0.7	0.5	—	0.3	0.1	-0.1
Electric power, gas and water utilities.....	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.2
Transportation, storage and communication...	0.6	0.5	0.6	0.8	0.6	0.8	0.5	0.5	0.6	0.6
Transportation.....	0.5	0.3	0.5	0.6	0.4	0.6	0.3	0.4	0.4	0.4
Trade.....	0.3	0.8	0.6	1.0	1.1	0.8	0.7	0.6	0.6	0.2
Wholesale trade.....	0.1	0.3	0.3	0.5	0.5	0.4	0.3	0.3	0.3	0.2
Retail trade.....	0.2	0.5	0.3	0.5	0.6	0.4	0.4	0.3	0.3	—
Finance, insurance and real estate.....	1	0.7	0.6	0.5	0.6	0.4	0.5	0.3	0.4	0.3
Community, business and personal service industries.....	0.5	0.7	0.7	1.0	1.1	1.3	1.0	0.8	0.8	0.6
Public administration and defence.....	1	0.2	0.1	0.1	0.1	0.2	0.3	0.2	0.1	0.2
<b>Percentage Change in Real Domestic Product</b>	<b>2.0</b>	<b>6.9</b>	<b>5.4</b>	<b>6.8</b>	<b>7.1</b>	<b>7.0</b>	<b>3.2</b>	<b>5.2</b>	<b>4.5</b>	<b>2.4</b>

<sup>1</sup>No data are available prior to 1961 on a 1961 base due to a break in historical continuity resulting from the implementation of the 1960 standard industrial classification and the 1961 weight and reference base for the indexes.



High-voltage transformers and shunt reactors are manufactured at a new internationally financed plant at Varennes, Que. Geared initially to a production of \$12,000,000 a year, it will compete in the rapidly growing North American market for high-voltage power transmission systems and eventually for other electrical products. The plant has access to the testing facilities of Hydro-Quebec's research institute, considered the most advanced on this Continent.

The community, business and personal services group has grown at a fairly steady pace in the past decade, tending to be relatively insensitive to short-term fluctuations, and has thus been one of the sustaining forces in the economy. The rate of increase in output of this industry grouping continued in 1970 to outstrip that of the aggregate output of the economy, paced by such industries as education and services to business management.

### 15.—Quantity Indexes of Real Domestic Product at Factor Cost, by Industry of Origin, 1955-70

(1961=100)

Industry	1961 Percent- age Weight	1955	1956	1957	1958	1959	1960	1961	1962
Agriculture.....	4.525	114.9	122.0	102.6	113.8	110.2	115.3	100.0	122.0
Forestry.....	1.231	94.8	100.1	91.1	80.7	91.2	104.4	100.0	106.4
Fishing and trapping.....	0.259	98.0	103.5	97.9	109.3	98.1	95.1	100.0	106.9
Mines (incl. milling), quarries and oil wells.....	4.564	66.4	77.1	84.6	86.0	97.3	97.4	100.0	106.2
Manufacturing.....	24.943	82.2	89.9	89.7	88.0	94.5	96.1	100.0	109.0
Non-durables manufacturing.....	13.933	77.2	83.5	85.5	86.9	92.9	95.4	100.0	106.0
Durables manufacturing.....	11.010	85.6	98.0	95.1	89.5	96.5	97.0	100.0	112.7
Construction.....	5.803	81.9	92.2	100.2	103.7	98.7	97.0	100.0	105.6
Electric power, gas and water utilities.....	2.908	57.9	64.6	69.5	76.3	86.6	94.4	100.0	105.3
Transportation, storage and communication.....	9.910	78.1	87.1	87.4	84.4	91.2	93.9	100.0	104.1
Trade.....	12.973	81.8	89.2	89.2	91.3	97.4	97.6	100.0	106.1
Wholesale.....	4.906	79.9	88.3	87.3	88.9	98.0	97.3	100.0	106.0
Retail.....	8.067	82.9	89.7	90.4	92.7	97.2	97.9	100.0	106.2
Finance, insurance and real estate.....	11.831	1	1	1	1	1	1	100.0	105.5
Community, business and personal service.....	13.821	77.7	82.1	85.0	88.2	93.0	96.7	100.0	105.4
Public administration and defence.....	7.232	1	1	1	1	1	1	100.0	103.1
<b>Real Domestic Product.....</b>	<b>100.000</b>	<b>82.1</b>	<b>89.1</b>	<b>89.5</b>	<b>91.0</b>	<b>95.7</b>	<b>98.0</b>	<b>100.0</b>	<b>106.9</b>
	1961 Percent- age Weight	1963	1964	1965	1966	1967	1968	1969	1970
Agriculture.....	4.525	136.9	123.9	127.6	145.9	118.6	126.0	129.9	124.9
Forestry.....	1.231	108.3	119.2	122.5	132.7	130.3	131.2	142.1	116.1
Fishing and trapping.....	0.259	106.4	108.9	106.6	118.2	112.1	127.1	112.6	114.8
Mines (incl. milling), quarries and oil wells.....	4.564	112.1	126.0	131.9	134.2	142.1	152.4	150.8	174.8
Manufacturing.....	24.943	116.2	127.4	138.8	148.7	152.3	162.5	171.0	169.5
Non-durables manufacturing.....	13.933	110.9	119.5	125.8	133.3	136.3	143.5	151.0	153.1
Durables manufacturing.....	11.010	122.9	137.3	155.2	168.2	172.7	186.5	196.2	190.3
Construction.....	5.803	107.1	117.4	131.6	141.7	141.2	147.4	151.3	148.3
Electric power, gas and water utilities.....	2.908	111.6	120.8	129.9	141.4	151.2	162.8	177.9	191.7
Transportation, storage and communication.....	9.910	111.1	120.3	127.6	138.0	145.3	153.1	161.2	172.6
Trade.....	12.973	111.2	119.5	129.4	137.6	144.7	150.6	157.8	159.9
Wholesale.....	4.906	112.0	123.4	135.8	146.4	154.7	162.6	172.4	178.2
Retail.....	8.067	110.7	117.2	125.5	132.3	138.6	143.3	148.9	148.8
Finance, insurance and real estate.....	11.831	110.5	115.0	120.8	125.6	131.4	135.0	140.6	144.2
Community, business and personal service.....	13.821	110.9	119.0	128.8	140.4	150.4	158.2	167.4	174.4
Public administration and defence.....	7.232	104.0	106.3	108.3	112.2	118.2	121.5	123.7	127.2
<b>Real Domestic Product.....</b>	<b>100.000</b>	<b>112.7</b>	<b>120.4</b>	<b>129.0</b>	<b>138.0</b>	<b>142.4</b>	<b>149.8</b>	<b>155.6</b>	<b>160.4</b>

<sup>1</sup>No data are available prior to 1961 on a 1961 base due to a break in historical continuity resulting from the implementation of the 1960 standard industrial classification and the 1961 weight and reference base for the indexes.

A major factor in 1970 which counteracted the weakened domestic demand was a striking gain in exports, led by exports of metals, mineral fuels and grains. This was reinforced by the recovery in industries whose 1969 output had been depressed by labour disputes. The industries benefiting from the combined effect of both factors were mining and transportation, which together accounted for nearly one half of the change in total real output.

The slowdown in the 1970 growth rate of total real domestic product occurred during the first three quarters of the year. The pick-up in activity in the final quarter was highlighted by the resurgence in residential construction which mitigated the impact of the automobile strike.

Total production increased sharply in the first half of 1971. At the aggregate level, there was renewed strength in domestic demand. Exports of significant commodities on a



year-to-year comparison were lower, dampening production in such export-oriented industries as metal mines and pulp and paper. By industry, strength was concentrated in durables manufacturing (reflecting, in part, the rebound in transportation equipment from the strike-depressed level in the fourth quarter), construction and trade. A notable feature of the increase in construction was the first advance in non-residential construction since the beginning of 1970. The main thrust was in trade, shared by both wholesale and retail trade. Within retail trade, there was particularly strong demand for the goods and services of motor vehicle dealers, department and clothing stores.

### Production of Goods-Producing Industries

The data contained in the tables under this heading are published in the Statistics Canada report *Survey of Production*.<sup>\*</sup> The scope of the survey of production is limited to industries engaged chiefly in the production of goods and it measures production in current dollars. This is in contrast to the real domestic product series (p. 1187) which encompasses all industries and measures production in terms of the dollars of a base year.

Tables 16 and 17 give "census value added" production data, classified by province and industry, respectively, on a primary activity basis.<sup>\*</sup> Census value added is derived by deducting the cost of materials from the gross value of production (exclusive of excise and other sales taxes) or revenue. The 1960 standard industrial classification of establishments is the basis of classification in the *Survey of Production*.

<sup>\*</sup> Statistics Canada Catalogue No. 61-202. See Appendix of the 1969 issue for census value added in selected industries on a "total activity" basis.

### 16.—Census Value Added for Goods-Producing Industries, by Province, 1966-69

Province or Territory	1966		1967		1968		1969	
	\$'000	p.c.	\$'000	p.c.	\$'000	p.c.	\$'000	p.c.
Newfoundland <sup>1</sup> .....	419,883	1.4	414,580	1.4	459,806	1.4	521,230	1.5
Prince Edward Island.....	72,297	0.3	60,384	0.2	66,187	0.2	69,750	0.2
Nova Scotia.....	542,953	1.9	557,394	1.9	595,171	1.9	685,502	2.0
New Brunswick.....	472,618	1.6	474,466	1.6	513,718	1.6	553,761	1.6
Quebec.....	7,136,277	24.5	7,268,234	24.4	7,691,899	24.1	8,358,166	23.9
Ontario.....	12,125,120	41.7	12,732,101	42.6	13,646,316	42.8	14,796,301	42.4
Manitoba.....	1,030,587	3.5	1,075,317	3.6	1,179,163	3.7	1,314,367	3.8
Saskatchewan.....	1,793,085	6.2	1,436,776	4.8	1,474,317	4.6	1,578,546	4.5
Alberta.....	2,603,426	8.9	2,724,607	9.1	2,960,828	9.3	3,252,014	9.3
British Columbia <sup>2</sup> .....	2,840,262	9.8	3,048,008	10.2	3,243,856	10.2	3,648,414	10.5
Yukon and Northwest Territories <sup>2</sup> .....	64,698	0.2	66,124	0.2	81,152	0.2	93,359	0.3
<b>Canada.....</b>	<b>29,101,208</b>	<b>100.0</b>	<b>29,857,988</b>	<b>100.0</b>	<b>31,912,412</b>	<b>100.0</b>	<b>34,871,410</b>	<b>100.0</b>

<sup>1</sup> Excludes agriculture.  
British Columbia.

<sup>2</sup> Construction figures for the Yukon and Northwest Territories are included with

### 17.—Census Value Added for Goods-Producing Industries, by Province and Industry, 1969

Industry	Newfoundland		Prince Edward Island		Nova Scotia		New Brunswick	
	\$'000	p.c.	\$'000	p.c.	\$'000	p.c.	\$'000	p.c.
Agriculture.....	—	—	21,926	31.4	41,757	6.1	34,510	6.2
Forestry.....	17,625	3.4	—	—	11,769	1.7	33,962	6.1
Fisheries.....	30,785	5.9	8,775	12.6	56,641	8.3	15,986	2.9
Trapping.....	106	—	6	—	254	—	236	—
Mining.....	160,713	30.9	—	—	34,145	5.0	40,701	7.4
Electric power.....	34,032	6.5	4,461	6.4	41,714	6.1	44,869	8.1
Manufacturing.....	112,518	21.6	18,471	26.5	298,534	43.5	269,848	48.8
Construction.....	165,451	31.7	16,111	23.1	200,688	29.3	113,649	20.5
<b>Totals.....</b>	<b>521,230<sup>1</sup></b>	<b>100.0<sup>1</sup></b>	<b>69,750</b>	<b>100.0</b>	<b>685,502</b>	<b>100.0</b>	<b>553,761</b>	<b>100.0</b>

<sup>1</sup> Excludes agriculture.



**17.—Census Value Added for Goods-Producing Industries, by Province and Industry, 1969—concluded**

Industry	Quebec		Ontario		Manitoba		Saskatchewan	
	\$'000	p.c.	\$'000	p.c.	\$'000	p.c.	\$'000	p.c.
Agriculture.....	398,678	4.8	825,584	5.6	255,740	19.4	785,555	49.8
Forestry.....	181,810	2.2	125,697	0.9	3,557	0.3	5,976	0.4
Fisheries.....	9,221	0.1	7,389	0.1	3,354	0.3	2,294	0.1
Trapping.....	2,714	--	4,906	--	2,584	0.2	1,806	0.1
Mining.....	488,216	5.8	651,482	4.4	152,484	11.6	288,998	18.3
Electric power.....	447,844	5.4	524,928	3.5	74,294	5.6	67,430	4.3
Manufacturing.....	5,672,740	67.9	10,635,970	71.9	486,057	37.0	186,893	11.8
Construction.....	1,156,943	13.8	2,020,345	13.6	336,297	25.6	239,594	15.2
<b>Totals.....</b>	<b>8,358,166</b>	<b>100.0</b>	<b>14,796,301</b>	<b>100.0</b>	<b>1,314,367</b>	<b>100.0</b>	<b>1,578,546</b>	<b>100.0</b>
	Alberta		British Columbia		Yukon and Northwest Territories		Canada	
	\$'000	p.c.	\$'000	p.c.	\$'000	p.c.	\$'000	p.c.
Agriculture.....	582,076	17.9	129,854	3.6	..	..	3,075,680	8.8
Forestry.....	8,059	0.2	450,329	12.3	113	0.1	838,896	2.4
Fisheries.....	935	--	47,387	1.3	1,035	1.1	183,802	0.5
Trapping.....	1,938	0.1	650	--	1,053	1.1	16,254	0.1
Mining.....	1,108,604	34.1	313,267	8.6	81,393	87.2	3,320,004	9.6
Electric power.....	94,460	2.9	169,843	4.7	7,298	7.8	1,511,172	4.3
Manufacturing.....	702,810	21.6	1,745,128	47.8	2,467	2.7	20,131,436	57.7
Construction.....	753,132	23.2	791,956 <sup>1</sup>	21.7 <sup>1</sup>	2	2	5,794,166	16.6
<b>Totals.....</b>	<b>3,252,014</b>	<b>100.0</b>	<b>3,648,414</b>	<b>100.0</b>	<b>93,359</b>	<b>100.0</b>	<b>34,871,410</b>	<b>100.0</b>

<sup>1</sup> Includes the Yukon and Northwest Territories.<sup>2</sup> Included with British Columbia.

## Section 4.—Aggregate Productivity Trends

Increasing interest in questions of economic growth, cost-structure and international competitiveness, and in the relationships between output, employment, earnings and prices has focused attention on productivity as a framework within which such problems can usefully be discussed. Recognizing this interest, Statistics Canada now publishes annual indexes of output per person employed and per man-hour in Canada covering the commercial industries as a whole, with separate detail for agriculture and the commercial non-agricultural industries, manufacturing and the residual commercial non-manufacturing industries. Similar indexes are also published for the total and non-agricultural commercial goods-producing industries, and the commercial service-producing industries of the same aggregate.\*

Although these measures relate output to a single input only, namely labour time, they do not measure the exclusive contribution of labour to output. Changes in indexes of output per unit of labour input reflect the combined influence of a number of separate but interrelated factors such as the amount and quality of capital equipment, the extent of utilization of available capacity, managerial efficiency and the impact of technological progress, as well as the skill and effort of the work force.

**Sources of Data.**—The output components of the various indexes of output per unit of labour input referred to here are the historical indexes of "real domestic product (RDP) by industry", described in Section 3, p. 1187. These indexes, which were developed within the conceptual framework of the national accounts and which measure in constant

\* See Statistics Canada Reference Paper *Indexes of Output per Person Employed and per Man-Hour in Canada, Commercial Non-agricultural Industries, 1947-63* (Catalogue No. 14-501) and *Aggregate Productivity Trends* (Catalogue No. 14-201).

dollar terms the unduplicated contribution of each component industry to total output, are considered basically suitable for productivity measurement when matched with the corresponding input measures.

The major sources for the employment and man-hour indexes were the monthly labour force and employment surveys, and these were supplemented by data from such sources as the annual censuses of manufactures and mining and the decennial census of population. Since the data from these diverse sources varied considerably in their coverage, concepts and methods of compilation, care had to be exercised in their selection, adaptation and combination into aggregate measures of labour input which would be conceptually and statistically consistent, both internally and in relation to the output data. Labour force survey data were used for the paid worker estimates of agriculture and of fishing and trapping, while those for manufacturing and mining were based on adjusted annual census data. Estimates for most of the remaining industry divisions were derived from adjusted employment survey data. Estimates of other than paid workers (own-account workers, employers and unpaid family workers) were derived mainly from the labour force survey. The estimates of average hours worked, which were needed for the indexes of output per man-hour, were also based on labour force survey data, except in the case of manufacturing, where estimates of man-hours paid from the census of manufactures were adjusted to the man-hours worked concept.

**Growth Rates.**—Output per person employed in the commercial non-agricultural industries grew at an average annual rate of 2.7 p.c. between 1946 and 1970. Because of the decline in average hours worked per person, this was a lower rate of growth than that of output per man-hour which, during the same period, increased by 3.3 p.c. per annum. Corresponding figures for manufacturing were 3.7 p.c. and 4.0 p.c. and those for the residual non-manufacturing industries of the commercial non-agricultural sector were 2.3 p.c. and 3.0 p.c., respectively.

In agriculture, the average annual rates of growth of output per person employed and per man-hour between 1946 and 1970 were 5.1 p.c. and 5.4 p.c., respectively. However, in view of the difficulties of measuring the number and especially the man-hours of persons employed in agriculture, data presented for this industry division should be regarded as approximate. In the commercial industries as a whole, output per person employed increased between 1946 and 1970 at an average annual rate of 3.4 p.c., and output per man-hour increased by 4.1 p.c. per annum. Corresponding figures for the total commercial goods-producing industries were 4.9 p.c. and 5.6 p.c., respectively, per annum; for the commercial non-agricultural goods-producing industries, 4.1 p.c. and 4.5 p.c.; and for the commercial service-producing industries, 1.4 p.c. and 2.1 p.c.

**Inter-industry Shift Effects.**—In addition to measuring the changes in productivity within the component industries, the aggregate productivity indexes measure the effect of shifts in employment and production between industries having different levels of productivity. One of the most significant such shifts within the commercial industries of Canada during the postwar years was from agriculture to the non-agricultural industries, where a higher level of output per unit of labour input prevails. The effect of this shift can be measured in various ways and a number of alternative calculations have been carried out for the 1946-65 annual publication,\* all of which confirm, to a greater or lesser extent, that the decline in the relative importance of agriculture made a positive contribution to the total increase in output per person employed in the commercial industries during the postwar period.

\* Statistics Canada Catalogue No. 14-201.

## 18.—Indexes of Output per Person Employed and Output per Man-Hour, 1946-70

(1961=100)

Year	Output	Persons Employed	Man-Hours	Output per Person Employed	Output per Man-Hour
COMMERCIAL INDUSTRIES					
1946	51.6	84.5	95.1	61.1	54.2
1947	55.0	88.5	97.3	62.2	56.5
1948	57.0	90.1	99.1	63.2	57.5
1949	58.5	91.4	99.7	64.0	58.7
1950	62.7	91.4	97.8	68.6	64.1
1951	67.5	93.7	99.5	72.0	67.9
1952	72.5	94.6	100.0	76.6	72.5
1953	75.5	95.1	100.3	79.4	75.2
1954	73.8	94.4	99.3	78.2	74.3
1955	82.1	95.7	99.7	85.8	82.3
1956	89.5	99.5	103.5	89.9	86.5
1957	89.7	101.3	104.1	88.6	86.1
1958	91.0	98.4	100.5	92.4	90.5
1959	95.9	100.1	102.0	95.8	94.0
1960	98.0	99.6	100.8	98.4	97.2
1961	100.0	100.0	100.0	100.0	100.0
1962	107.3	102.4	102.2	104.7	104.9
1963	113.5	104.6	103.6	108.5	109.6
1964	121.5	108.3	106.6	112.2	114.0
1965	130.5	112.8	110.2	115.7	118.5
1966	139.6	116.5	112.5	119.8	124.1
1967	143.2	118.5	113.8	120.8	125.9
1968	150.7	118.9	112.7	126.7	133.7
1969	157.6	122.8	114.8	128.4	137.2
1970	161.0	122.9	113.8	131.0	141.5
Annual trend rate of change.....p.c.	4.8	1.4	0.7	3.4	4.1
COMMERCIAL GOODS-PRODUCING INDUSTRIES					
1946	51.0	103.5	116.3	49.3	43.9
1947	54.0	106.3	115.9	50.8	46.6
1948	56.8	107.0	116.7	53.1	48.7
1949	57.8	107.9	116.8	53.6	49.5
1950	62.6	107.0	113.7	58.5	55.0
1951	68.6	109.0	115.1	63.0	59.6
1952	74.5	108.2	113.9	68.9	65.4
1953	77.4	107.6	113.9	72.0	68.0
1954	73.9	105.5	111.3	70.0	66.4
1955	83.7	105.7	110.5	79.2	75.7
1956	91.9	108.5	113.0	84.7	81.3
1957	91.0	108.1	111.0	84.2	82.0
1958	92.4	102.4	104.4	90.3	83.5
1959	96.8	103.1	105.1	93.9	92.1
1960	99.0	101.2	102.5	97.8	96.6
1961	100.0	100.0	100.0	100.0	100.0
1962	109.3	101.5	101.7	107.7	107.5
1963	116.1	102.6	102.1	113.1	113.7
1964	124.9	105.5	104.3	118.4	119.7
1965	134.9	108.6	106.7	124.2	126.5
1966	145.0	110.8	108.1	130.9	134.1
1967	145.6	110.9	107.3	131.3	135.6
1968	154.8	109.8	105.3	141.0	147.0
1969	161.6	110.9	104.8	145.7	154.1
1970	163.3	108.7	102.1	150.2	160.0
Annual trend rate of change.....p.c.	5.0	0.1	-0.6	4.9	5.6
COMMERCIAL SERVICE-PRODUCING INDUSTRIES					
1946	51.8	61.3	68.4	84.5	75.8
1947	55.8	66.6	73.6	83.7	75.9
1948	56.9	69.4	76.5	82.0	74.3
1949	59.1	71.3	78.0	82.9	75.7
1950	62.2	72.4	77.6	85.9	80.2
1951	65.7	75.1	79.6	87.5	82.5
1952	69.4	78.0	82.4	89.0	84.3
1953	72.4	79.9	83.2	90.6	87.0
1954	73.3	81.0	84.1	90.5	87.1
1955	79.4	83.4	86.0	95.2	92.4
1956	85.6	88.6	91.4	96.6	93.6
1957	87.6	93.1	95.5	94.1	91.7
1958	88.7	93.5	95.3	94.9	93.0
1959	94.1	96.4	98.0	97.6	96.0

# 18.—Indexes of Output per Person Employed and Output per Man-Hour, 1946-70 —continued

Year	Output	Persons Employed	Man-Hours	Output per Person Employed	Output per Man-Hour
COMMERCIAL SERVICE-PRODUCING INDUSTRIES—concluded					
1960.....	96.3	97.7	98.7	98.5	97.6
1961.....	100.0	100.0	100.0	100.0	100.0
1962.....	105.1	103.7	103.0	101.4	102.0
1963.....	110.7	107.2	105.6	103.3	104.8
1964.....	117.9	111.9	109.6	105.4	107.5
1965.....	125.9	118.1	114.8	106.6	109.6
1966.....	133.9	123.8	118.2	108.1	113.2
1967.....	140.8	128.3	122.4	109.8	115.0
1968.....	146.2	130.6	122.6	111.9	119.3
1969.....	153.5	138.0	128.2	111.3	119.8
1970.....	158.6	141.1	129.4	112.4	122.5
Annual trend rate of change..... p.c.	4.7	3.3	2.6	1.4	2.1
AGRICULTURE					
1946.....	95.0	175.9	181.9	54.0	52.2
1947.....	89.2	166.4	166.1	53.6	53.7
1948.....	92.1	162.5	163.5	56.7	56.3
1949.....	86.8	160.8	162.3	54.0	53.5
1950.....	94.9	151.0	148.9	62.9	63.7
1951.....	108.3	139.2	139.8	77.8	77.5
1952.....	132.6	132.2	134.0	100.3	98.9
1953.....	121.2	127.3	131.7	95.2	92.0
1954.....	93.1	130.2	136.1	71.5	68.4
1955.....	114.9	121.5	127.3	94.5	90.3
1956.....	122.0	115.1	121.5	106.0	100.4
1957.....	102.6	110.3	115.0	93.0	89.2
1958.....	113.8	105.6	108.3	107.7	105.1
1959.....	110.2	102.6	104.9	107.4	105.0
1960.....	115.3	100.2	102.1	115.1	112.9
1961.....	100.0	100.0	100.0	100.0	100.0
1962.....	122.0	96.9	96.3	125.9	126.7
1963.....	136.9	95.3	93.5	143.7	146.4
1964.....	123.9	92.5	89.4	133.9	138.6
1965.....	127.6	87.2	83.3	146.3	153.2
1966.....	145.9	79.9	77.5	182.6	188.2
1967.....	118.6	82.1	78.5	144.5	151.1
1968.....	126.0	80.2	75.2	157.2	167.5
1969.....	129.9	78.6	74.2	165.3	175.1
1970.....	124.9	75.0	70.3	166.5	177.7
Annual trend rate of change..... p.c.	1.5	-3.5	-3.8	5.1	5.4
COMMERCIAL NON-AGRICULTURAL INDUSTRIES					
1946.....	47.9	69.7	76.2	68.7	62.8
1947.....	52.1	75.9	82.3	68.7	63.3
1948.....	54.0	78.4	85.0	68.9	63.5
1949.....	56.1	80.2	86.0	70.0	65.2
1950.....	59.9	81.8	86.6	73.2	69.2
1951.....	64.0	86.4	90.7	74.1	70.6
1952.....	67.4	88.5	92.6	76.1	72.8
1953.....	71.5	89.9	93.5	79.5	76.4
1954.....	72.2	88.7	91.3	81.4	79.0
1955.....	79.3	91.5	93.7	86.7	84.6
1956.....	86.8	97.0	99.6	89.5	87.1
1957.....	88.6	99.8	101.8	88.7	87.0
1958.....	89.1	97.3	98.8	91.6	90.2
1959.....	94.7	99.7	101.3	95.0	93.5
1960.....	96.5	99.6	100.6	96.9	96.0
1961.....	100.0	100.0	100.0	100.0	100.0
1962.....	106.4	103.4	103.6	102.9	102.7
1963.....	112.2	106.2	105.9	105.7	106.0
1964.....	121.4	110.9	110.5	109.4	109.9
1965.....	130.7	117.1	116.2	111.6	112.4
1966.....	139.3	122.7	120.4	113.5	115.7
1967.....	144.6	124.7	121.8	116.0	118.7
1968.....	152.0	125.5	121.2	121.1	125.4
1969.....	159.2	130.3	124.0	122.2	128.4
1970.....	163.1	131.0	123.6	124.5	131.9
Annual trend rate of change..... p.c.	5.2	2.4	1.8	2.7	3.3



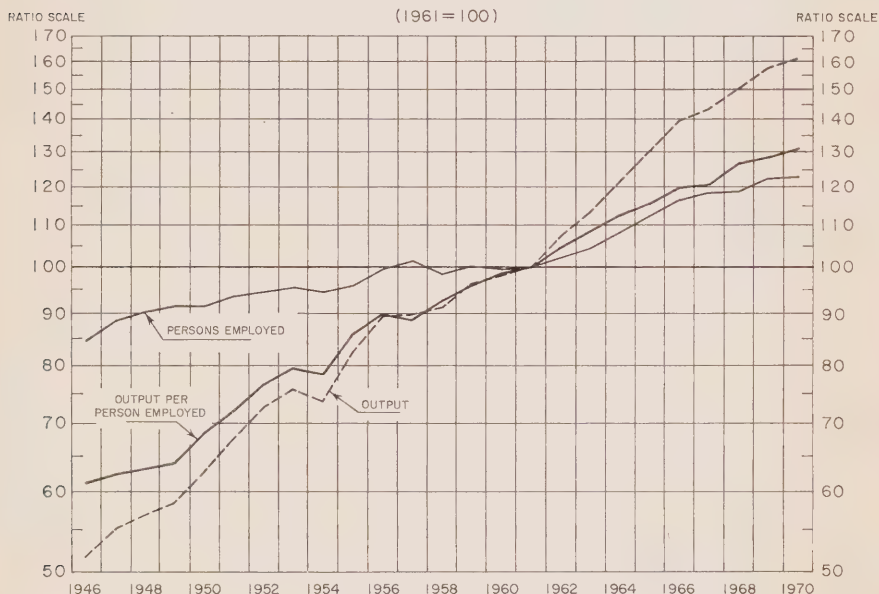
**18.—Indexes of Output per Person Employed and Output per Man-Hour, 1946-70**  
—continued

Year	Output	Persons Employed	Man-Hours	Output per Person Employed	Output per Man-Hour
<b>COMMERCIAL NON-AGRICULTURAL GOODS-PRODUCING INDUSTRIES</b>					
1946.....	44.1	78.9	85.3	55.9	51.7
1947.....	48.5	85.9	92.3	56.5	52.5
1948.....	51.3	88.2	94.8	58.2	54.1
1949.....	53.3	89.9	95.3	59.3	55.9
1950.....	57.6	92.1	97.1	62.5	59.3
1951.....	62.4	98.7	103.5	63.3	60.3
1952.....	65.5	100.0	104.4	65.5	62.7
1953.....	70.6	100.8	105.5	70.0	66.9
1954.....	71.0	97.0	99.6	73.2	71.3
1955.....	78.8	100.4	102.7	78.5	76.7
1956.....	87.3	106.3	109.1	82.1	80.0
1957.....	89.2	107.3	109.1	83.1	81.8
1958.....	89.1	101.3	102.6	88.0	86.8
1959.....	94.8	103.3	105.2	91.7	90.1
1960.....	96.5	101.6	102.8	95.0	93.9
1961.....	100.0	100.0	100.0	100.0	100.0
1962.....	107.9	103.1	104.3	104.7	103.5
1963.....	113.8	105.1	106.2	108.2	107.1
1964.....	125.0	110.0	111.5	113.7	112.1
1965.....	125.7	116.1	117.8	116.9	115.2
1966.....	144.9	121.5	122.7	119.3	118.1
1967.....	148.7	120.9	121.1	123.0	122.8
1968.....	158.1	120.0	119.6	131.7	132.2
1969.....	165.2	122.1	119.4	135.2	138.3
1970.....	167.7	120.4	117.2	139.3	143.1
Annual trend rate of change.....p.c.	5.7	1.5	1.1	4.1	4.5
<b>MANUFACTURING</b>					
1946.....	50.7	82.5	89.7	61.4	56.5
1947.....	55.4	88.3	94.9	62.8	58.4
1948.....	57.8	90.2	97.4	64.1	59.3
1949.....	59.5	91.6	97.1	65.0	61.3
1950.....	63.4	92.5	97.2	68.5	65.3
1951.....	68.9	94.2	101.2	70.2	68.1
1952.....	71.5	100.5	102.6	71.1	69.7
1953.....	76.6	103.6	105.2	74.0	72.1
1954.....	74.9	99.0	99.7	75.7	75.2
1955.....	82.2	101.4	102.6	81.1	80.1
1956.....	89.9	103.6	107.6	85.1	83.5
1957.....	89.7	106.1	106.8	84.5	84.0
1958.....	88.0	100.6	101.3	87.4	86.9
1959.....	94.5	101.8	103.1	92.8	91.6
1960.....	96.1	100.8	101.3	95.3	94.8
1961.....	100.0	100.0	100.0	100.0	100.0
1962.....	109.0	102.7	103.8	106.1	105.0
1963.....	116.2	105.2	106.7	110.4	108.9
1964.....	127.4	110.0	112.0	115.8	113.7
1965.....	138.8	115.7	117.7	119.9	117.9
1966.....	148.7	121.2	122.4	122.7	121.5
1967.....	152.3	121.7	122.1	125.2	124.8
1968.....	162.5	120.8	121.1	134.5	134.2
1969.....	171.0	123.0	121.1	129.0	141.2
1970.....	169.5	121.2	118.6	139.8	142.9
Annual trend rate of change.....p.c.	5.1	1.4	1.1	3.7	4.0
<b>NON-MANUFACTURING INDUSTRIES (COMMERCIAL NON-AGRICULTURAL)</b>					
1946.....	46.6	64.6	71.2	72.2	65.4
1947.....	50.6	70.9	77.6	71.3	65.2
1948.....	52.3	73.7	80.4	70.9	65.0
1949.....	54.6	75.7	82.0	72.1	66.6
1950.....	58.3	77.4	82.6	75.4	70.6
1951.....	61.8	81.4	86.6	75.9	71.4
1952.....	65.6	83.4	88.7	78.6	73.9
1953.....	69.2	84.0	88.5	82.4	78.2
1954.....	71.0	84.2	88.0	84.3	80.7
1955.....	78.0	87.2	90.2	89.4	86.5
1956.....	85.4	93.3	96.4	91.5	88.6
1957.....	88.1	97.2	99.9	90.6	88.2
1958.....	89.6	95.8	97.7	93.6	91.7

### 18.—Indexes of Output per Person Employed and Output per Man-Hour, 1946-70 —concluded

Year	Output	Persons Employed	Man-Hours	Output per Person Employed	Output per Man-Hour
NON-MANUFACTURING INDUSTRIES (COMMERCIAL NON-AGRICULTURAL)—concluded					
1959.....	94.8	98.7	100.6	96.0	94.3
1960.....	96.7	99.2	100.4	97.5	96.3
1961.....	100.0	100.0	100.0	100.0	100.0
1962.....	105.2	103.7	103.5	101.4	101.6
1963.....	110.4	106.7	105.5	103.5	104.7
1964.....	118.7	111.4	109.8	106.6	108.1
1965.....	127.1	117.8	115.5	107.9	110.0
1966.....	135.1	123.4	119.4	109.4	113.2
1967.....	141.2	126.2	121.6	111.8	116.1
1968.....	147.3	127.9	121.2	115.2	121.5
1969.....	153.9	134.0	125.4	114.9	122.7
1970.....	160.2	136.0	126.1	117.8	127.1
Annual trend rate of change.....p.c.	5.2	2.9	2.2	2.3	3.0

### INDEXES OF OUTPUT PER PERSON EMPLOYED, COMMERCIAL INDUSTRIES, 1946-70



## Section 5.—Canadian Balance of International Payments

The Canadian Balance of International Payments summarizes transactions between residents of Canada and those of the rest of the world. These statistics form part of the series comprising the "System of National Accounts". Current account transactions, which measure the flow of goods and services between Canada and other countries, are included, with minor adjustments, as a component of Gross National Expenditure. Capital account transactions between residents and non-residents are included in the Financial Flow Accounts (see Sect. 2, pp. 1181-1186).

**Summary of 1970 Transactions.**—In 1970, although exports, especially of merchandise, were one of the most buoyant sectors of the economy throughout the year, economic activity in Canada was relatively subdued. The rate of real growth as measured by the constant dollar value (i.e., in terms of 1961 prices) of the Gross National Product fell to 3.3 p.c. from 5.1 p.c. in 1969. This slack in the domestic economy was reflected in merchandise imports, which in 1970 experienced a marginal decrease of 1.2 p.c. from 1969. Declining imports, coupled with a rapid increase in exports, particularly in the first and fourth quarters of the year, as reflected in the seasonally adjusted data, gave rise to a record trade surplus of \$2,917,000,000. Despite an increased deficit in non-merchandise transactions, the first annual surplus since 1952 was recorded in the current account as it swung from a \$952,000,000 deficit in 1969 to a surplus of \$1,060,000,000 in 1970.

Apart from the general slackness of the economy, special factors affecting patterns of activity in 1970 were: the boost in exports early in the year to catch up on strike-interrupted deliveries in 1969; the floating of the Canadian dollar at the end of May and its subsequent marked appreciation; a gradual easing of monetary policy especially in the last three quarters of the year, which had to take into account not only domestic requirements but also the effects of differential interest rates on the exchange rate and international reserves; a general slackness in the United States economy with some buoyancy elsewhere; and the pervasive effects, especially in the fourth quarter, of the continent-wide strike against General Motors Corporation.

Inflows of capital in long-term forms declined by \$1,367,000,000 to \$738,000,000 as new Canadian issues sold to non-residents fell by \$870,000,000 to \$1,219,000,000. With a gradual easing of monetary conditions in Canada, especially in the latter part of the year, and in response to official requests to limit their issues abroad, Canadian borrowers obtained a far greater proportion of their funded debt requirements domestically in 1970 than in 1969. Other principal factors that may have contributed to the reduced net inflow of long-term capital, apart from the general economic slowdown, were: the most protracted slide in stock prices experienced in recent years on North American exchanges causing investors, including institutions, to re-evaluate their holdings; a narrowing of interest rate differentials, especially with Europe; uncertainty about pending changes in Canadian tax law; and a growing public debate on the role of foreign capital in Canada.

Short-term capital outflows fell by \$820,000,000 to \$268,000,000. The main element in this change was a reduction of \$1,211,000,000 in the outflow to increase Canadian holdings of bank balances and other short-term funds abroad. There were significant inflows as non-residents increased their holdings of Canadian money market instruments. These changes were occasioned mainly by arbitrage movements taking advantage of hedged interest-rate differentials. At times during the year these differentials widened appreciably due principally to a substantial premium which developed for the forward Canadian dollar in the second and third quarters. It should be noted that the category "other short-term capital transactions" includes amounts that have not yet been identified. This errors-and-omissions element of the Canadian balance of international payments during 1970, as currently measured, reflects unidentified net payments of about \$200,000,000.

Canada's net official monetary assets increased by \$1,598,000,000 in 1970. Some \$133,000,000 of this increase was accounted for by Canada's share of the Special Drawing Rights which the International Monetary Fund allocated to participating member countries on Jan. 1, 1970. Apart from this transaction, Canada's international reserves still rose substantially in the first quarter of 1970 and even more sharply in the following two months. With the possibility of reserves rising far in excess of Canada's needs and in order to avoid an immediate problem of financing any further accumulation, the Canadian authorities announced on May 31, 1970 that they would no longer peg the Canadian dollar to within 1 p.c. of its par value of 92½ U.S. cents.

**Current Account Transactions.**—At 12 p.c. the rate of growth of merchandise exports in 1970 was one fifth higher than in 1969. This was achieved despite the rise in

the value of the Canadian dollar following its unpegging at June 1, 1970 and was all the more remarkable since it was accomplished largely as a result of gains in Canadian exports to overseas countries. The value of exports to these countries was over one third higher than in 1969 and provided more than three quarters of the increase in sales. Due partly to greater Canadian penetration in a number of relatively small markets, the share of Canada's exports going to overseas countries increased from 29 p.c. in 1969 to 35 p.c. in 1970. The United States share correspondingly declined to 65 p.c. The over-all growth rate of exports was in line with the 1970 rate of growth of world exports in general and of developed countries in particular.

Among factors that contributed to the commodity exports performance in 1970 was the resumption of a large volume of deliveries of wheat to state trading countries (especially the Soviet Union), coupled with large shipments of barley and rapeseed. Wheat exports were boosted by a reduction in the supply of wheat in world markets due to drought conditions in grain exporting countries such as Australia, Argentina and France and by government-assisted sales to such countries as Peru and the United Arab Republic. Barley exports profited from setbacks in the United States where, as a result of the Southern Corn Blight, there were lower yields. Catch-up requirements of metals following the 1969 strikes in the mining industry in Canada added to the strength in demand for mineral resource products. On the other hand, exports of forest products were adversely affected by lower residential construction activity in the United States, strikes at mills and by tow-boat operators and by the appreciation of the Canadian dollar. Exports of manufactured products were influenced by sluggish demand for durable goods generally and by strikes in the last months of 1970. On a commodity basis, the principal increases in exports occurred in wheat and barley, iron ore, nickel, copper, crude petroleum and natural gas, fertilizers and steel. Exports of motor vehicles, engines and parts decreased by \$25,000,000 from 1969 as compared with an increase of \$845,500,000 from 1968 to 1969.

With imports actually falling below the 1969 total to \$13,833,000,000 and the Gross National Product rising by 7.4 p.c. (in current dollar terms), the upward trend in the ratio of merchandise imports to GNP which, during the previous five years, rose by two percentage points to reach 18 p.c. in 1969, was reversed, dropping to 16 p.c. in 1970. The downturn in imports reflected in part the countervailing influences of lower unit value of imports following the appreciation of the dollar in mid-year, and the stimulative effects which the rise in the value of the Canadian dollar should have provided to purchases from abroad. In addition, there was a general sluggishness in the economy with softness in the domestic retail market, rising unemployment, restrained business spending and a decline in manufacturing activity. These general problems were exacerbated throughout much of the fourth quarter of the year by the continent-wide strike against General Motors. In addition to automobiles, other products showing reductions in imports were excavating and agricultural machinery, communications equipment, lumber, fuel oil, steel and precious metals. Increases in imports were recorded for food and beverages, coal, crude petroleum, inorganic chemicals, metal-working and pulp and paper industries machinery, computers and other office machines and equipment.

In 1970, receipts from non-merchandise transactions, including transfers, rose by 13 p.c. to \$4,855,000,000 while payments increased by 11 p.c. to \$6,712,000,000. The deficit on these transactions increased therefore by about 5 p.c. to \$1,857,000,000. Service receipts at \$4,359,000,000 went up by 14 p.c. while service payments climbed by 11 p.c. to \$6,101,000,000. The deficit on the services, which represented 94 p.c. of the total deficit on invisibles, increased by about 4 p.c. to \$1,759,000,000. Increases from 1969 amounting in total to \$218,000,000 in the deficits on travel, interest and dividends, and business services were offset to the extent of about 70 p.c. by the strengthening in the balances on freight and shipping and miscellaneous income.

The net balance from receipts and payments of interest and dividends reached a deficit of \$997,000,000, increasing by \$82,000,000 over the 1969 net total. Although both income receipts and payments recorded exceptionally large gains in 1970, the increase in the latter,



amounting to \$157,000,000, had nearly twice as strong an impact on the net balance as the rise in receipts of \$75,000,000. By far the most important contributor to this spurt in earnings was that generated from official holdings of foreign exchange.

The deficit on travel continued to increase, rising to \$226,000,000 from \$218,000,000 in the previous year. The largest relative increases for both receipts and payments occurred in travel expenditures vis-à-vis overseas countries. Canadian travel expenditures with these countries rose by 31 p.c. as against an increase of 5 p.c. in travel expenditures with the United States. Receipts from overseas travellers went up by 35 p.c., which was about three times the rate of growth of expenditures of United States residents travelling to Canada. This development in overseas travel reflects in part the increase in Canadian travel expenditures as a result of the 1970 World Exposition in Osaka, Japan, and the upsurge in charter operations to Europe and the Caribbean area which have seen significant growth in recent years and reached record proportions in 1970.

The largest change in the balance on the invisible items took place on freight and shipping. The balance on this account strengthened by \$98,000,000, surging from a deficit of \$61,000,000 to a surplus of \$37,000,000. With the ratio of the receipts and payments to merchandise exports and imports, respectively, remaining practically unchanged, the movement on this account reflected the change in merchandise trade. This was the first time since 1952 that a surplus appeared in this account.

The totals for business services and other transactions for both 1969 and 1970 have been revised to cover additional receipts and payments for a number of services involving the non-corporate sector which, following a preliminary review of this area, appeared to be undercovered. In addition, service receipts for 1969 were revised to include various charges which were deducted as a balance of payments adjustment from merchandise exports. Gold production available for export continued to fall, dropping from \$108,000,000 in 1969 to \$96,000,000 in 1970, the second consecutive annual decline from the \$120,000,000 level reached in 1968.

#### 19.—Current Account Transactions Between Canada and All Countries, 1951-70

(Millions of dollars)

Year	Current Receipts		Current Payments			Net Balance on Current Account
	Merchandise	Other	Merchandise	Official Contributions	Other	
1951.....	3,950	1,342	4,101	9	1,694	— 512
1952.....	4,339	1,534	3,854	16	1,816	+ 187
1953.....	4,152	1,587	4,212	25	1,950	— 448
1954.....	3,934	1,598	3,916	11	2,029	— 424
1955.....	4,332	1,749	4,543	24	2,201	— 687
1956.....	4,837	1,795	5,565	30	2,409	— 1,372
1957.....	4,894	1,742	5,488	40	2,559	— 1,451
1958.....	4,890	1,704	5,066	53	2,612	— 1,137
1959.....	5,151	1,725	5,572	72	2,719	— 1,487
1960.....	5,392	1,787	5,540	61	2,811	— 1,233
1961.....	5,889	1,934	5,716	56	2,979	— 928
1962.....	6,387	2,077	6,203	36	3,055	— 830
1963.....	7,082	2,230	6,579	65	3,189	— 521
1964.....	8,238	2,556	7,537	69	3,612	— 424
1965.....	8,745	2,775	8,627	93	3,930	— 1,130
1966 <sup>1</sup> .....	10,326	3,070	10,102	166	4,290	— 1,162
1967.....	11,338	3,747	10,772	182	4,630	— 499
1968.....	13,537	3,647	12,162	133	4,996	— 107
1969.....	14,832	4,291	14,007	144	5,924	— 952
1970.....	16,750	4,855	13,833	201	6,511	+ 1,060

<sup>1</sup> From 1966, offsetting entries for mutual aid to NATO are excluded.

The deficit on transfers, due largely to an increase of about 40 p.c. in official contributions, increased from \$91,000,000 to \$115,000,000. There was an increase of 17 p.c. in net inflows on account of inheritances and migrants' funds, due largely to higher per capita amounts from a smaller number of immigrants. The net payment balance for personal and institutional remittances decreased marginally. Official contributions went up by 40 p.c. to \$201,000,000, mainly because of increases in the international food aid program and the international assistance account which consists of technical and economic assistance to developing countries. Disbursements under the international food aid program, the bulk of which was wheat, represented about one half of the \$201,000,000 in foreign aid.

## 20.—Geographical Distribution of the Balance on Current Account Between Canada and Other Countries, 1951-70

(Millions of dollars)

Year	United States <sup>1</sup>	United Kingdom	Other Overseas Countries	All Countries	Year	United States <sup>1</sup>	United Kingdom	Other Overseas Countries	All Countries
1951.....	- 945	+ 223	+ 210	- 512	1961.....	- 1,341	+ 195	+ 218	- 928
1952.....	- 830	+ 387	+ 630	+ 187	1962.....	- 1,092	+ 225	+ 37	- 830
1953.....	- 907	+ 132	+ 327	- 448	1963.....	- 1,148	+ 417	+ 210	- 521
1954.....	- 800	+ 229	+ 147	- 424	1964.....	- 1,635	+ 605	+ 606	- 424
1955.....	- 1,029	+ 332	+ 10	- 687	1965.....	- 1,937	+ 505	+ 302	- 1,130
1956.....	- 1,650	+ 253	+ 25	- 1,372	1966.....	- 2,030	+ 425	+ 443	- 1,162
1957.....	- 1,579	+ 120	+ 8	- 1,451	1967.....	- 1,342	+ 512	+ 331	- 499
1958.....	- 1,167	+ 97	- 67	- 1,137	1968.....	- 801	+ 466	+ 228	- 107
1959.....	- 1,221	+ 16	- 282	- 1,487	1969.....	- 877	+ 281	- 356	- 952
1960.....	- 1,359	+ 169	- 43	- 1,233	1970.....	- 191	+ 709	+ 542	+ 1,060

<sup>1</sup> Includes all net exports of monetary gold.

**Capital Movements.**—The net movement of capital between Canada and other countries in 1970 produced an inflow of \$470,000,000, a decline of \$547,000,000 from the 1969 level. Inflows of capital in long-term forms declined by \$1,367,000,000 to \$738,000,000 while short-term capital outflows fell by \$820,000,000 to \$268,000,000 in the year under review. The net capital inflow combined with the unprecedented current account surplus of \$1,060,000,000 and the initial allocation of Special Drawing Rights of \$133,000,000 to produce a record increase in net official monetary assets of \$1,663,000,000.

Long-term net capital inflows to Canada have consisted primarily of major flows of direct investment to the Canadian economy together with inflows arising from the placing of new issues in foreign markets. Transactions affecting direct investment in foreign-controlled Canadian enterprises resulted in a net capital inflow of \$310,000,000 in the fourth quarter of 1970 and \$770,000,000 in the year as a whole. The United States continued to be the major contributor of direct investment capital to Canada with net flows representing about 74 p.c. of the total although the level was virtually unchanged from the previous year. A significant development during the year was the sharply increased flows from Continental Europe, well over double the amount recorded in the previous year and representing about one fifth of the current total. Most of the net inflow was channelled into new capital formation and normal working capital requirements; however, over 20 p.c. of the net flows represented special transactions such as the takeover of existing Canadian

enterprises or assets by non-residents and the re-financing of facilities acquired or built in an earlier period. Re-financing was particularly prominent in 1970 and represented over half of the net inflow to the petroleum and natural gas industry.

Portfolio transactions in 1970 gave rise to a net inflow of \$611,000,000, down sharply from the \$1,806,000,000 inflow of 1969. Sales of new Canadian issues abroad of \$1,219,000,000 were the lowest since 1964 and the retirement of Canadian securities at \$483,000,000 the highest since 1966. Trading in outstanding Canadian securities was responsible for net outflows of \$186,000,000, a change of \$241,000,000 from the previous year's inflow. Transactions in foreign securities also contributed to the reduction with an inflow of \$61,000,000 during 1970 compared to \$102,000,000 in 1969. The large-scale inflows of 1969 continued in the first and second quarters of 1970, but then changed abruptly to a net outflow in the third quarter. As the year progressed, trading in outstanding foreign securities swung steadily from a net inflow of \$117,000,000 in the first quarter to a net outflow of \$101,000,000 in the fourth quarter.

Non-military assistance abroad by the Canadian Government consists largely of payments of the regular assessments by the international organizations of which Canada is a member, official contributions, intergovernmental loans, subscriptions to the capital of investment agencies and the extension of export credits. Both assessments and contributions form a part of Canada's payments on current account while other transactions, to the extent that they give rise to claims on non-residents, are mainly reflected in capital movements in long-term forms.

Disbursements on intergovernmental loans extended by Canada in 1970 more than doubled to \$112,000,000 over the previous year. Over 80 p.c. of this outflow went to Commonwealth Asian countries. Disbursements are expected to continue to grow in succeeding years as drawings so far constitute only a small but growing part of aid commitments.

Subscriptions to the capital of international agencies in 1970 amounted to \$32,000,000. This amount, made up of payments to the International Development Association, the Asian Development Bank and the Caribbean Regional Development Bank, was paid in the form of non-negotiable, non-interest-bearing Canadian dollar demand notes for the first two institutions. Changes in the obligations to IDA and ADB are reflected in the short-term capital account covering Government of Canada demand liabilities.

During 1970, Canada received higher repayments of \$36,000,000 in principal on intergovernmental loans extended earlier. The increase of \$14,000,000 over 1969 reflected receipts of about \$9,000,000 and \$5,000,000 from France and the Netherlands, respectively. These were the first principal repayments received from these countries since 1962 when prepayments covering the period up to 1969 were made to bolster Canada's foreign exchange reserves. Of the remainder, \$20,000,000 came from the United Kingdom while \$2,000,000 was paid by Belgium. In addition to the repayments of principal, there were receipts of \$23,000,000 during 1970 on account of interest. These receipts form part of the current account item comprising Canada's receipts of interest and dividends.

Receipts from the United States associated with the Columbia River Treaty amounted to \$31,000,000, representing a further annual maturity of the medium-term non-marketable United States government securities acquired in connection with the Treaty arrangements. Holdings of these securities stood at U.S. \$24,000,000 at the end of 1970.

Transactions arising from the financing of medium- and long-term export credits extended from Canada directly or indirectly at the risk of the Government of Canada resulted in a large net outflow of \$129,000,000. This contrasted with the net outflow in 1969 of only \$12,000,000 and was attributable to a sharp increase in advance of export credits on wheat to Latin American and Middle Eastern countries. Large net advances to

Latin America and to a lesser degree Yugoslavia occurred in commodities other than wheat. Although centrally planned economies other than Yugoslavia accounted for large credit advances for the purchase of wheat, repayments of earlier loans ran slightly higher.

The remaining capital movements in long-term forms, which include bank and other long-term loans, mortgage investments and movements of insurance funds, led to a net outflow of \$157,000,000 compared to a net outflow of \$4,000,000 in 1969. Capital movements in short-term forms in 1970 gave rise to a net outflow of \$268,000,000 compared to \$1,088,000,000 in 1969.

The outflow for the acquisition by Canadians of foreign currency deposits and other short-term funds abroad accounted for \$376,000,000 in 1970 compared to the build-up in 1969 of \$1,587,000,000. A principal factor in the 1970 movement was a rise of \$122,000,000 in the chartered banks' foreign currency net asset position with non-residents.

Transactions in finance company paper in 1970 resulted in net inflows of \$193,000,000. After a net outflow of \$75,000,000 in the first quarter, transactions in finance company paper resulted in substantial net inflows for the rest of the year, particularly in the second quarter in which net inflows mounted to \$174,000,000. Finance company paper, in particular, responded to covered arbitrage movements, in which the differential in interest yields between countries is related to the forward rate of exchange for a country's currency. Movements of short-term paper in the second quarter appear to have been motivated by a considerable premium on the forward Canadian dollar, while a narrowing of interest differentials in the fourth quarter produced a massive inflow through investment in high-quality paper including bankers' acceptances. This type of paper is included with commercial paper, for which gross trading increased more than threefold from the 1969 level and resulted in net inflows of \$52,000,000.

Non-residents, primarily international institutions, reduced their holdings of Government of Canada treasury bills by some \$73,000,000, mostly in the third quarter.

Other short-term capital movements included increases in Canadian dollar deposits by non-residents of \$27,000,000, outflows of \$8,000,000 of Government of Canada demand liabilities consisting of interest-free demand notes issued to international agencies, and outflows produced through reductions in non-resident holdings of miscellaneous finance company obligations and the other short-term capital transactions category. The latter category includes a balancing item of approximately \$200,000,000 representing the difference between direct measurements of the current and capital accounts.

**Official International Monetary Assets and Liabilities.**—Canada's net official monetary assets totalled U.S. \$4,679,000,000 at Dec. 31, 1970, an increase of U.S. \$1,574,000,000 over the year. The large increase in reserves of U.S. \$978,000,000 during the first five months of the year and the monetary problems associated with financing any further substantial accumulation led to the announcement by the Minister of Finance on May 31, 1970 that the Canadian authorities would no longer peg the Canadian dollar to within 1 p.c. of its par value of 92½ U.S. cents. However, even with a floating exchange rate, net reserves registered an additional U.S. \$596,000,000 increase over the remaining seven months. In part, this was due to swaps and forward transactions as the Exchange Fund had acquired by May 31, 1970 U.S. \$360,000,000 for future delivery. These fell due in the remaining months of the year and resulted in an equivalent increase in reserves. In addition, the Exchange Fund undertook transactions for the purpose of moderating movements in the exchange rate, also resulting in some net addition to the reserves.

Holdings in United States dollars increased by a record amount of U.S. \$1,278,000,000 over the year. The largest part of the increase, amounting to U.S. \$782,000,000, occurred before the unpegging of the Canadian dollar in May.



**21.—Balance of International Payments Between Canada and All Countries, 1965-70**

(Millions of dollars)

Item	1965	1966	1967	1968	1969	1970
<b>Current Receipts—</b>						
Merchandise exports (adjusted).....	8,745	10,326	11,338	13,537	14,832	16,750
Service Receipts—						
Gold production available for export.....	138	127	112	120	108	96
Travel.....	747	840	1,318	978	1,074	1,234
Interest and dividends.....	322	318	295	353	451	526
Freight and shipping.....	668	758	830	891	935	1,121
Other service receipts.....	562	676	770	840	1,262	1,382
Totals, Service Receipts.....	2,437	2,719	3,325	3,182	3,830	4,359
Totals, Exports of Goods and Services..	11,182	13,045	14,663	16,719	18,662	21,109
Transfer Receipts—						
Inheritances and immigrants' funds.....	216	268	329	370	366	389
Personal and institutional remittances.....	83	83	93	95	95	107
<b>Totals, Current Receipts.....</b>	<b>11,481</b>	<b>13,396</b>	<b>15,085</b>	<b>17,184</b>	<b>19,123</b>	<b>21,605</b>
<b>Current Payments—</b>						
Merchandise imports (adjusted).....	8,627	10,102	10,772	12,162	14,007	13,833
Service Payments—						
Travel.....	796	900	895	1,008	1,292	1,460
Interest and dividends.....	1,086	1,140	1,211	1,259	1,366	1,523
Freight and shipping.....	761	823	861	931	996	1,084
Other service payments.....	904	1,090	1,277	1,441	1,862	2,034
Totals, Service Payments.....	3,547	3,953	4,244	4,639	5,516	6,101
Totals, Imports of Goods and Services..	12,174	14,055	15,016	16,801	19,523	19,934
Transfer Payments—						
Inheritances and emigrants' funds.....	211	198	213	209	204	199
Personal and institutional remittances.....	133	139	173	148	204	211
Official contributions.....	93	166	182	133	144	201
<b>Totals, Current Payments.....</b>	<b>12,611</b>	<b>14,558</b>	<b>15,584</b>	<b>17,291</b>	<b>20,075</b>	<b>20,545</b>
<b>Current Account Balance—</b>						
Merchandise trade.....	+ 118	+ 224	+ 566	+1,375	+ 825	+2,917
Service transactions.....	-1,110	-1,234	- 919	-1,457	-1,686	-1,742
Net transfers.....	- 138	- 152	- 146	- 25	- 91	- 115
<b>Current Account Balance.....</b>	<b>-1,130</b>	<b>-1,162</b>	<b>- 499</b>	<b>- 107</b>	<b>- 952</b>	<b>+1,060</b>
<b>Capital Account—</b>						
Direct Investment—						
In Canada.....	+ 535	+ 790	+ 691	+ 590	+ 720	+ 770
Abroad.....	- 125	- 5	- 125	- 225	- 370	- 280
Portfolio Transactions—						
Canadian Securities—						
Outstanding bonds.....	+ 55	- 104	- 57	- 70	+ 2	- 39
Outstanding stocks.....	- 274	- 136	+ 12	+ 114	+ 53	- 147
New issues.....	+1,240	+1,465	+1,307	+1,917	+2,089	+1,219
Retirements.....	- 390	- 499	- 357	- 431	- 440	- 483
Foreign Securities—						
Outstanding issues.....	- 53	- 361	- 382	- 420	+ 112	+ 83
New issues.....	- 57	- 57	- 65	- 77	- 47	- 32
Retirements.....	+ 25	+ 17	+ 15	+ 30	+ 37	+ 10
Loans and Subscriptions, Government of Canada—						
Advances.....	- 14	- 35	- 38	- 78	- 89	- 144
Repayments.....	+ 10	+ 24	+ 34	+ 5	+ 22	+ 36
Columbia River Treaty.....	+ 32	+ 32	+ 44	+ 88	+ 32	+ 31
Export credits directly or indirectly at risk of the Government of Canada.....	- 187	- 41	+ 107	+ 29	- 12	- 129

## 21.—Balance of International Payments Between Canada and All Countries, 1965-70

—concluded

Item	1965	1966	1967	1968	1969	1970
<b>Capital Account—concluded</b>						
Other long-term capital transactions.....	+ 67	+ 77	+ 169	+ 180	— 4	— 157
Balance of Capital Movements in Long-term Forms.....	+ 864	+1,167	+1,355	+1,652	+2,105	+ 738
Resident holdings of foreign bank balances and other short-term funds abroad.....	+ 139	— 603	— 259	— 497	—1,587	— 376
Non-resident holdings of Canadian—						
Dollar deposits.....	+ 31	+ 11	+ 24	+ 72	+ 59	+ 27
Government demand liabilities.....	+ 2	+ 5	+ 4	+ 21	— 34	— 8
Treasury bills.....	+ 12	— 15	+ 4	+ 48	+ 28	— 73
Commercial paper.....	— 15	+ 16	— 11	+ 2	+ 42	+ 52
Financial company paper.....	— 162	— 1	— 64	— 132	+ 178	+ 193
Other short-term paper.....	+ 25	— 12	+ 24	— 2	— 2	+ 49
Other finance company obligations.....	+ 209	+ 154	+ 35	+ 24	+ 117	— 103
Other short-term capital transactions.....	+ 183	+ 81	— 585	— 732	+ 111	— 29
Balance of Capital Movements in Short-term Forms.....	+ 424	— 364	— 836	—1,196	—1,088	— 268
<b>Totals, Net Capital Balance.....</b>	<b>+1,288</b>	<b>+ 803</b>	<b>+ 519</b>	<b>+ 456</b>	<b>+1,017</b>	<b>+ 470</b>
Allocation of Special Drawing Rights.....	...	...	...	...	...	+ 133
Net Official Monetary Assets—						
Official international reserves.....	+ 158	— 360	+ 17	+ 350	+ 65	+1,662
Official monetary liabilities.....	—	+ 1	+ 3	— 1	—	+ 1
<b>Net Official Monetary Assests.....</b>	<b>+ 158</b>	<b>— 359</b>	<b>+ 20</b>	<b>+ 349</b>	<b>+ 65</b>	<b>+1,663</b>

## 22.—Balance of International Payments Between Canada and the United States, 1965-70

(Millions of dollars)

Item	1965	1966	1967	1968	1969	1970
<b>Current Receipts—</b>						
Merchandise exports (adjusted).....	4,993	6,249	7,277	9,116	10,463	10,859
Service Receipts—						
Gold production available for export.....	138	127	112	120	108	96
Travel.....	660	730	1,164	891	961	1,082
Interest and dividends.....	204	194	176	231	260	330
Freight and shipping.....	337	411	425	467	523	561
Other service receipts.....	353	429	491	573	743	762
Totals, Service Receipts.....	1,692	1,891	2,368	2,282	2,595	2,831
Totals, Exports of Goods and Services..	6,685	8,140	9,645	11,398	13,058	13,690
Transfer Receipts—						
Inheritances and immigrants' funds.....	91	106	105	137	155	165
Personal and institutional remittances.....	56	55	57	54	54	66
<b>Totals, Current Receipts.....</b>	<b>6,832</b>	<b>8,301</b>	<b>9,807</b>	<b>11,589</b>	<b>13,267</b>	<b>13,921</b>
<b>Current Payments—</b>						
Merchandise imports (adjusted).....	6,034	7,242	7,846	8,867	10,127	9,806
Service Payments—						
Travel.....	548	628	627	710	893	936
Interest and dividends.....	906	985	1,058	1,074	1,143	1,275

## 22.—Balance of International Payments Between Canada and the United States, 1965-70

—concluded

Item	1965	1966	1967	1968	1969	1970
<b>Current Payments—concluded</b>						
Service Payments—concluded						
Freight and shipping.....	465	530	522	561	562	569
Other service payments.....	615	756	893	984	1,242	1,359
Totals, Service Payments.....	2,534	2,899	3,100	3,329	3,840	4,139
Totals, Imports of Goods and Services..	8,568	10,141	10,946	12,196	13,967	13,945
Transfer Payments—						
Inheritances and emigrants' funds.....	160	145	156	145	127	114
Personal and institutional remittances.....	41	45	47	49	50	53
<b>Totals, Current Payments.....</b>	<b>8,769</b>	<b>10,331</b>	<b>11,149</b>	<b>12,390</b>	<b>14,144</b>	<b>14,112</b>
Current Account Balance—						
Merchandise trade.....	-1,041	- 993	- 569	+ 249	+ 336	+1,053
Service transactions.....	- 842	-1,008	- 732	-1,047	-1,245	-1,308
Net transfers.....	- 54	- 29	- 41	- 3	+ 32	+ 64
<b>Current Account Balance.....</b>	<b>-1,937</b>	<b>-2,030</b>	<b>-1,342</b>	<b>- 801</b>	<b>- 877</b>	<b>- 191</b>
<b>Capital Account—</b>						
Direct Investment—						
In Canada.....	+ 421	+ 718	+ 575	+ 354	+ 564	+ 573
Abroad.....	- 24	+ 87	- 72	- 108	- 287	- 217
Portfolio Transactions—						
Canadian Securities—						
Outstanding bonds.....	+ 21	- 72	- 63	- 67	- 27	- 69
Outstanding stocks.....	- 195	- 95	+ 77	+ 104	+ 2	- 79
New issues.....	+1,200	+1,409	+1,239	+1,391	+1,502	+1,024
Retirements.....	- 330	- 456	- 301	- 376	- 382	- 325
Foreign Securities—						
Outstanding issues.....	- 49	- 344	- 355	- 402	+ 112	+ 75
New issues.....	- 28	- 33	- 38	- 46	- 30	- 18
Retirements.....	+ 5	+ 6	+ 8	+ 16	+ 7	+ 5
Columbia River Treaty.....	+ 32	+ 32	+ 44	+ 88	+ 32	+ 31
Export credits directly or indirectly at risk of the Government of Canada.....	-	+ 25	+ 7	+ 8	+ 3	+ 1
Other long-term capital transactions.....	+ 52	+ 55	+ 137	+ 172	- 9	- 104
Balance of Capital Movements in Long- term Forms.....	+1,105	+1,332	+1,258	+1,134	+1,487	+ 897
Resident holdings of foreign bank balances and other short-term funds abroad.....	- 817	- 582	- 164	- 433	- 835	- 122
Non-resident Holdings of Canadian—						
Dollar deposits.....	+ 5	+ 17	+ 3	+ 24	+ 29	+ 48
Government demand liabilities.....	- 2	- 1	-	-	-	-
Treasury bills.....	+ 7	- 1	- 4	- 3	+ 3	- 4
Commercial paper.....	- 15	+ 3	- 4	+ 1	+ 44	+ 50
Finance company paper.....	- 208	- 33	- 67	- 62	+ 191	+ 116
Other short-term paper.....	+ 13	- 1	+ 7	+ 10	+ 1	+ 48
Other finance company obligations.....	+ 205	+ 152	+ 32	+ 22	+ 114	- 105
Other short-term capital transactions.....	+ 144	+ 34	- 510	- 866	+ 105	- 12
Balance of Capital Movements in Short- term Forms.....	- 668	- 412	- 707	-1,307	- 348	+ 19
<b>Totals, Net Capital Balance.....</b>	<b>+ 437</b>	<b>+ 920</b>	<b>+ 551</b>	<b>- 173</b>	<b>+1,139</b>	<b>+ 916</b>
<b>Balance settled by exchange transfers.....</b>	<b>+1,543</b>	<b>+ 626</b>	<b>+ 771</b>	<b>+1,455</b>	<b>- 474</b>	<b>..</b>
Net Official Monetary Assets—						
Official international reserves.....	+ 43	- 484	- 20	+ 483	- 212	..
Official monetary liabilities.....	-	-	-	- 2	-	..
<b>Net Official Monetary Assets.....</b>	<b>- 43</b>	<b>- 484</b>	<b>- 20</b>	<b>+ 481</b>	<b>- 212</b>	<b>..</b>

## 23. Current Account Transactions Between Canada and the United Kingdom, 1965-70

(Millions of dollars)

Item	1965	1966	1967	1968	1969	1970
<b>Current Receipts—</b>						
Merchandise exports (adjusted).....	1,184	1,133	1,199	1,240	1,115	1,490
<b>Service Receipts—</b>						
Gold production available for export.....	—	—	—	—	—	—
Travel.....	34	39	40	23	29	44
Interest and dividends.....	44	32	36	16	46	30
Freight and shipping.....	132	121	127	124	108	128
Other service receipts.....	97	101	110	128	245	288
Totals, Service Receipts.....	307	293	313	291	428	490
Totals, Exports of Goods and Services...	1,491	1,426	1,512	1,531	1,543	1,980
<b>Transfer Receipts—</b>						
Inheritances and immigrants' funds.....	55	81	81	77	78	68
Personal and institutional remittances.....	12	12	15	12	12	12
<b>Totals, Current Receipts.....</b>	<b>1,558</b>	<b>1,519</b>	<b>1,608</b>	<b>1,620</b>	<b>1,633</b>	<b>2,060</b>
<b>Current Payments—</b>						
Merchandise imports (adjusted).....	624	664	651	682	787	734
<b>Service Payments—</b>						
Travel.....	89	94	88	103	145	156
Interest and dividends.....	114	93	90	94	104	104
Freight and shipping.....	86	89	104	94	107	114
Other service payments.....	83	94	100	111	135	160
Totals, Service Payments.....	372	370	382	402	491	534
Totals, Imports of Goods and Services...	996	1,034	1,033	1,084	1,278	1,268
<b>Transfer Payments—</b>						
Inheritances and emigrants' funds.....	30	30	31	38	40	49
Personal and institutional remittances.....	27	30	32	32	34	34
Official contributions.....	—	—	—	—	—	—
<b>Totals, Current Payments.....</b>	<b>1,053</b>	<b>1,094</b>	<b>1,096</b>	<b>1,154</b>	<b>1,352</b>	<b>1,351</b>
<b>Current Account Balance—</b>						
Merchandise trade.....	+ 560	+ 469	+ 548	+ 558	+ 328	+ 756
Service transactions.....	— 65	— 77	— 69	— 111	— 63	— 44
Net transfers.....	+ 10	+ 33	+ 33	+ 19	+ 16	— 3
<b>Current Account Balance.....</b>	<b>+ 505</b>	<b>+ 425</b>	<b>+ 512</b>	<b>+ 466</b>	<b>+ 281</b>	<b>+ 709</b>

## Section 6.—Canada's International Investment Position\*

Canada's balance of international indebtedness reached a book value of over \$28,000,000,000 by the end of 1969, a sevenfold increase over the past two decades. Long-term foreign investment rose by over \$3,500,000,000, reflecting both an inflow of long-term capital and an increase in earnings accrued to and reinvested by non-residents. Other non-residents' claims on Canadians brought the total of Canada's external liabilities to about \$47,000,000,000. Total outflow of domestic long-term capital together with an increase in earnings accrued to Canadians abroad caused the total book value of Canadian long-term investment abroad to rise to about \$10,500,000,000 at the end of 1969. Due mainly to the large rise in private holdings of foreign exchange, total Canadian assets abroad registered an increase of about \$2,000,000,000, well exceeding \$18,500,000,000 at the end of 1969.

The balance of international indebtedness is a phrase generally accepted in balance-of-payments terminology to include equity investments as well as contractual borrowings.

\* A major new Statistics Canada report *Canada's International Investment Position, 1926 to 1967* (Catalogue No. 67-202) was published in December 1971, bringing together available data on Canada's international investment position and extending and revising material published in *Canada's International Investment Position, 1926-1964* and subsequent releases in Canada's Balance of International Payments reports. The main summary tables contain data from 1926 to 1969, while most of the detail extends only to 1967.



Its size and character have a considerable influence on Canada's balance of payments. This is true not only through the servicing of capital involving interest, dividends and miscellaneous income payments but also through the influence of foreign investment on the Canadian economy and on the shape and direction of its external demands.

Canada has been among the world's largest importers of private long-term capital. The very substantial capital formation which was a feature particularly since the 1950s was associated with an unprecedented growth in the country's external liabilities. These investments contributed to a rapid rate of growth in the Canadian economy, particularly in the exploitation of national resources, and added significantly to Canadian production, employment and income. At the same time they added substantially to the continuing burden of Canada's external debt and to the proportion of Canadian industry controlled by non-residents.

The latest year for which complete data are available is 1967. At the end of that year, Canada's gross external liabilities amounted to \$40,200,000,000; non-resident-owned long-term investments in Canada reached a book value of \$34,700,000,000. The part of these investments in enterprises controlled outside Canada totalled \$20,700,000,000. Investments in other Canadian equities, although smaller, were also substantial and there were periods in recent years of sharp increase in foreign holdings of Canadian bonds and debentures.

Investments of non-resident capital have been closely related to the high rate of growth in Canada and to the heavy demands placed on capital markets by this factor and by the financial needs of governments and municipalities. Large development projects have been initiated and financed by investors from other countries and the growth effects from this investment have, in turn, led to Canadian borrowing in capital markets outside Canada. While capital inflows have been the principal source of the increased indebtedness abroad, another substantial contributor has been the earnings from non-resident-controlled branches and subsidiaries which were retained in Canada. New resource industries depending to a large extent on non-resident financing include all branches of the petroleum industry, iron ore, potash and other mining, nickel and pulp and paper. In addition, secondary industry has also benefited from non-resident investment.

Canada's gross external assets totalled \$14,900,000,000 at the end of 1967 and government-owned assets made up a substantial part of that total. Canada's net balance of international indebtedness, including equity investments, at the same date was estimated at \$25,300,000,000.

**Foreign Investments in Canada.**—Dependence upon external sources of capital for financing in periods of heavy investment activity has been characteristic of Canadian development. During the exceptional growth that occurred before World War I, non-resident investment was very high and the main source of that investment was London. However, during the first part of the inter-war period, the United States became the principal source of external capital and by 1926 the portion of Canada's international debt owned in that country exceeded that owned in the United Kingdom. With some interruption during the 1930s, United States investment in Canada continued to increase, particularly after 1947 when the period of intense activity in the petroleum industry got under way. At \$28,030,000,000, United States long-term investments in 1967 represented about 81 p.c. of all non-resident long-term investment in Canada. The main rise occurred in direct investments in companies controlled in the United States.

United Kingdom long-term investments in Canada totalled \$3,576,000,000 at the end of 1967 and accounted for only about 10 p.c. of the total non-resident investments in Canada compared with 36 p.c. at the end of 1939 before most of the wartime repatriations. After reaching a low point in 1948, the value of United Kingdom investments in Canada increased each year to 1962, declined slightly in 1963, partly as a result of Canadian repatriation of investments in railways and further provincial takeover of other utilities, then increased again in subsequent years.

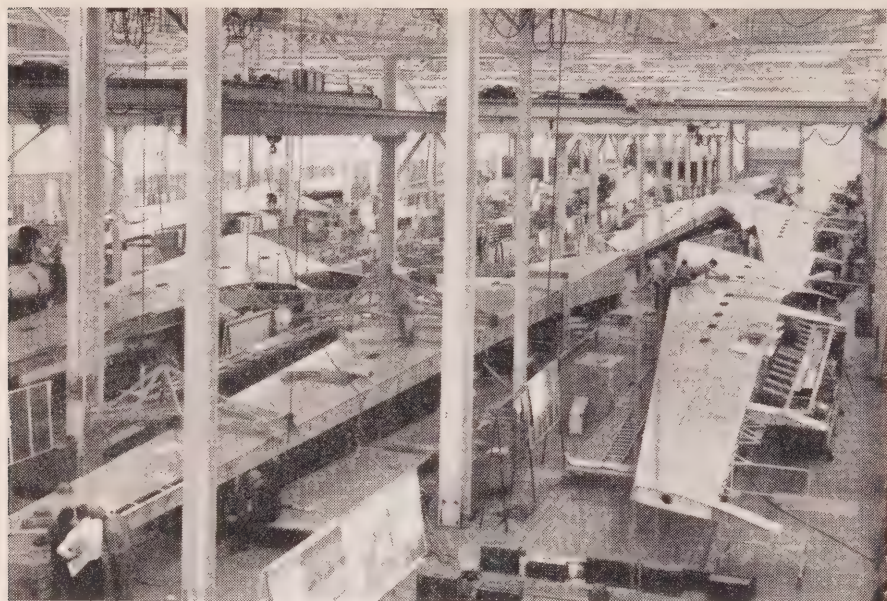
Long-term investments of countries other than the United States and the United Kingdom reached a record total of \$3,096,000,000 at the end of 1967. About two and one half times the 1957 figure, this represented a much higher rate of increase than had occurred in either United States or United Kingdom investments, and large increases had taken place in direct as well as in miscellaneous investments. At about 9 p.c. of the total, compared with 7 p.c. in 1957, this group of countries, mostly in Western Europe, accounted for a slightly larger proportion of total foreign investments than in 1966. Over 85 p.c. of the direct investment, which totalled \$1,547,000,000 in 1967, came from Europe; about one quarter was of Netherlands origin, with French, Belgian, Swiss and German investments making up the next largest groups.

The degree of dependence on non-resident capital for financing Canadian investment has been relatively much less in the postwar period than in the earlier periods of exceptional expansion, even though the rise in non-resident investments has been so great. Thus, from 1950 to 1952 the net use of foreign resources amounted to about one seventh and direct foreign financing to about 34 p.c. of net capital formation in Canada. But from 1959 to 1961, when these ratios had increased considerably to 42 p.c. and 56 p.c., respectively, they were still less than the corresponding ratios in the 1929-to-1930 period when inter-war investment activity was at its highest point. In that shorter period, more than one half of net capital formation was financed from outside of Canada, and in the period of heavy investment before World War I an even larger ratio of investment was financed by external capital. After 1964 these ratios declined somewhat; from 1965 to 1967 the net use of foreign resources comprised 21 p.c. of net capital formation in Canada and direct foreign financing, 40 p.c. In considering these changes it should be noted that for a decade and a half, between 1934 and 1949, Canada was a net exporter of capital and that Canadian assets abroad have been rising over a long period.

It should also be noted that the above ratios relate to the place of non-resident investments in all spheres of development including those where Canadian sources of financing predominate such as in merchandising, agriculture, housing, public utilities and other forms of social capital. Thus, non-resident financing of manufacturing, petroleum and mining has been much higher than the over-all ratios indicate and has provided the major portion of the capital investment in this field in the period since 1948. The most recent comprehensive calculation of the ratios of non-resident ownership in Canadian manufacturing, mining and petroleum is for the year 1967. In that year the Canadian manufacturing industry was 52-p.c. owned by non-residents but capital subject to foreign control was 57 p.c. These proportions compared with 50 p.c. and 56 p.c., respectively, as recently as the end of 1957. In the field of petroleum and natural gas, non-resident ownership and control amounted to 62 p.c. and 74 p.c., respectively, at the end of 1967, whereas at the end of 1957 non-resident ownership and control had amounted to 63 p.c. and 76 p.c., respectively; in mining and smelting, non-resident ownership and control amounted to 61 p.c. and 65 p.c., respectively, compared with 56 p.c. and 61 p.c. in 1957.

However, resident-owned Canadian capital continued to play a leading role in the financing of such areas of business as merchandising, railways and other public utilities. Hence, non-resident ownership in a broad range of business activity, including manufacturing, petroleum, mining, merchandising and railways and utilities, rose only slightly from 32 p.c. in 1948 to 35 p.c. in 1967. But, in the same years, companies subject to non-resident control increased from 25 p.c. to 35 p.c. their share of the total capital even in this broad area of business, a trend also evident in many subdivisions of the manufacturing and extractive industries.

Another basis of judging the place of foreign-controlled business in Canadian industry is provided by a special study of production and employment in the larger Canadian manufacturing establishments controlled by non-residents. Enterprises having an investment in Canada of \$1,000,000 or more accounted for about 40 p.c. of Canadian manufacturing production in 1961 and 29 p.c. of employment in that field. About 33 p.c. of Canadian manufacturing production and 22 p.c. of employment originated with United States-controlled plants. These ratios in United States-controlled plants were somewhat higher



*Wings for the McDonnell Douglas DC-10 jetliner on the final assembly line at a Malton, Ont., plant; this is part of the company's current contract for 300 wings valued at about \$500,000,000.*

than in 1953—the previous year for which a study of this kind was made. In some industries the proportions of production and employment in plants controlled by non-residents were much higher than this. Automobiles, for example, are produced mainly in United States-controlled plants, but this is exceptional. Other industries in which well over one half of the production is in non-resident-controlled firms include the smelting and refining of non-ferrous metals, petroleum refining, motor vehicle parts, aircraft and parts, and industrial chemicals. In several major industries like fruit and vegetable canning and preserving, and miscellaneous machinery and equipment manufacturing, the distribution of production between Canadian and foreign-controlled companies is more even. In such industries as pulp, paper and miscellaneous food manufacturing, the non-resident share is large although less than one half of the total.

There are, however, many industries where the largest part of production is in Canadian-controlled plants. Prominent among these are such important branches of industry as iron and steel mills, sawmills, feed manufacturing, clothing, and such divisions of the food and beverage group as bakeries, slaughtering and meat packing, pasteurizing and butter and cheese plants.

**Canadian Assets Abroad.**—Although there has been a great growth in non-resident investment in Canada and in the balance of Canadian indebtedness to other countries, it will be noted that Canadian assets abroad (Tables 24 and 27) have continued to rise in value. These now equal a larger proportion of liabilities abroad than was the case before World War II. As a proportion of Canada's liabilities they rose from about one fifth in 1926 to about two fifths in 1969. This development was accompanied by a change in the structure of Canada's assets. The share of private long-term investment in Canada's assets declined from about seven tenths of the total in 1926 to about one half in 1969. Assets abroad of the Government of Canada which were minor in 1926, accounted for over



a quarter of the total in 1969. In fact, in the period immediately after World War II the Government's proportion of Canada's foreign assets was even higher and in some years accounted for as much as two thirds of the total. Various short-term holdings other than net official monetary assets account for the balance of Canada's foreign assets. Their share of total assets has varied over the years. From about a third of the total in 1926, the proportion became negligible by the end of World War II. In recent years they comprised about a fifth of the total. Long-term assets, both private and government, have tended to be greater than short-term assets over the years.

Canadian long-term investment abroad has increased over elevenfold from \$926,000,000 in 1926 to \$10,356,000,000 in 1969. The bulk of Canadian long-term investment abroad is in private investment, especially direct investment. The remainder is mostly in government loans and advances and subscriptions to international investment agencies.

Geographically, long-term investment in the United States of \$5,285,000,000 made up slightly more than half of Canada's long-term investment abroad in 1969. About three fifths of total private investment was in that country. Outstanding Government of Canada credit provided under authority of the United Kingdom Financial Agreement Act, 1946, as subsequently amended in 1957, was the major element in the \$1,770,000,000 of Canadian assets in the United Kingdom. In the decade of the 1960s the share of direct investment in Canada's assets in the United Kingdom increased to account for over a third of the total. In other Commonwealth countries, direct investment has always been the predominant form of Canada's assets. Although at the end of 1969 direct investment accounted for over four fifths of Canada's assets in these countries, its share was somewhat lower than in most of the previous years due to the expansion of Government of Canada credits made under the new development or "soft" loan program. In the 1960s direct investment emerged as the most important form of Canada's assets in all other countries and accounted for close to two fifths of the total in those countries. Export credits made directly or indirectly at risk of the Government of Canada also continued to be an important element in Canada's assets in all other countries.

Canadian short-term assets consisting of net official monetary assets, other Canadian short-term holdings of exchange and short-term receivables increased more than fourfold since the end of World War II to account for over two fifths of total assets in 1969.

#### 24.—Canadian Balance of International Indebtedness, Selected Years, 1926-69

[Billions ('000 millions) of dollars]

NOTE.—Totals are rounded and may not represent the sum of their components.

Item	1926	1939	1945	1949	1959	1967	1968 <sup>a</sup>	1969 <sup>a</sup>
<b>Canadian Liabilities—</b>								
Direct investment.....	1.8	2.3	2.7	3.6	11.9	20.7	22.5	24.2
Government bonds.....	1.4	1.7	1.7	1.8	3.1	5.8	6.7	7.8
Other portfolio investment.....	2.5	2.6	2.4	2.3	4.6	5.8	6.2	6.9
Miscellaneous investment.....	0.3	0.3	0.3	0.3	1.3	2.4	2.5	2.7
Foreign Long-Term Investment in Canada.....	6.0	6.9	7.1	8.0	20.9	34.7	37.9	41.6
Non-resident equity in Canadian assets abroad.....	..	0.2	0.2	0.3	1.0	1.7	2.0	2.2
Totals, Long-Term Liabilities.....	6.0	7.1	7.3	8.3	21.8	36.4	39.9	43.8
Non-resident holdings of Canadian dollars.....	..	0.3	0.3	0.4	0.5	0.7	0.8	0.9
Gross liabilities <sup>1</sup> .....	6.4	7.4	7.6	8.7	22.4	37.1	40.7	44.6
United States <sup>1</sup> .....	3.5	4.5	5.4	6.4	17.0	29.7	32.2	34.8
United Kingdom <sup>1</sup> .....	2.7	2.6	1.8	1.8	3.4	3.9	4.1	4.5
Other Countries <sup>1,2</sup> .....	0.2	0.3	0.4	0.5	2.1	3.5	4.4	5.4
Short-term payables (not included elsewhere)— <sup>3,4</sup>								
Finance company obligations.....	}	..	0.6	0.6	1.4	1.0	0.9	1.2
Other.....						2.1	1.5	1.1
Gross Liabilities.....	6.4 <sup>1</sup>	7.4 <sup>1</sup>	8.2	9.3	23.8	40.2	43.1	46.9

For footnotes, see end of table, p. 1212.



**24.—Canadian Balance of International Indebtedness, Selected Years, 1926-69—concluded**

Item	1926	1939	1945	1949	1959	1967	1968 <sup>p</sup>	1969 <sup>p</sup>
<b>Canadian Assets—</b>								
Direct investment.....	0.4	0.7	0.7	0.9	2.3	4.0	4.6	5.0
Portfolio investment.....	0.5	0.7	0.6	0.6	1.2	2.6	2.9	3.0
Miscellaneous investment <sup>5</sup> .....	—	—	—	—	—	0.7	0.6	0.7
Government of Canada credits <sup>6</sup> .....	—	—	0.7	2.0	1.5	1.4	1.4	1.4
Government of Canada subscriptions to international investment agencies.....	—	—	—	0.1	0.1	0.2	0.2	0.2
Canadian Long-Term Investment Abroad.....	0.9	1.4	2.0	3.7	5.0	8.9	9.8	10.4
Net official monetary assets.....	—	0.5	1.7	1.3	1.9	2.9	3.3	3.3
Other Canadian short-term holdings of foreign exchange..	7	—	0.1	0.1	1.0	2.6	3.0	4.6
Gross assets <sup>1</sup> .....	1.3	1.9	3.9	5.1	8.0	14.5	16.1	18.3
Net official monetary assets.....	—	0.5	1.7	1.3	1.9	2.9	3.2	3.3
United States <sup>1,8</sup> .....	0.7	0.9	1.0	1.3	3.3	7.2	8.2	9.3
United Kingdom <sup>1,8</sup> .....	0.1	0.1	0.7	1.6	1.4	2.4	2.8	4.1
Other countries <sup>1,8</sup> .....	0.5	0.4	0.5	0.9	1.3	2.0	1.8	1.6
Short-term receivables (not included elsewhere) <sup>3</sup> .....	..	..	0.1	0.2	0.5	0.5	0.7	0.4
<b>Gross Assets.....</b>	<b>1.3<sup>1</sup></b>	<b>1.9<sup>1</sup></b>	<b>4.0</b>	<b>5.3</b>	<b>8.5</b>	<b>14.9</b>	<b>16.8</b>	<b>18.8</b>
<b>Canadian Net International Indebtedness.....</b>	<b>5.1<sup>1</sup></b>	<b>5.5<sup>1</sup></b>	<b>4.2</b>	<b>4.0</b>	<b>15.3</b>	<b>25.3</b>	<b>26.3</b>	<b>28.2</b>
Net official monetary assets.....	—	-0.5	-1.7	-1.3	-1.9	-2.9	-3.3	-3.3
United States.....	2.8	3.6	4.4	5.1	13.6	22.5	24.0	25.5
United Kingdom.....	2.6	2.5	1.1	0.2	1.9	1.5	1.3	0.3
Other countries.....	-0.3	-0.1	-0.1	-0.4	0.8	1.6	2.6	3.8
Short-term (not included elsewhere).....	..	..	0.4	0.4	1.0	2.7	1.8	1.9

<sup>1</sup> Includes short-term receivables and payables.<sup>2</sup> Includes international investment agencies<sup>3</sup> Country distribution not available.<sup>4</sup> At the end of 1964 about \$450,000,000 previously classified as long-term investment was shown as part of short-term finance company obligations.<sup>5</sup> Includes medium-term non-marketable United States government securities acquired under the Columbia River Treaty arrangements since 1964.<sup>6</sup> Includes export credits by government and private sectors less reserve against government inactive assets.<sup>7</sup> Net external assets of the chartered banks of Canada amounted to \$370,000,000.<sup>8</sup> Excludes net official monetary assets.**25.—Foreign Capital Invested in Canada, by Type of Investment, as at Dec. 31, 1960-67**

(Millions of dollars)

Type of Investment	1960	1961	1962	1963	1964	1965	1966	1967
<b>Government Securities—</b>								
Government of Canada.....	611	657	788	899	897	880	649	556
Provincial.....	1,632	1,743	1,862	2,217	2,564	2,828	3,171	3,819
Municipal.....	1,026	1,038	1,087	1,091	1,221	1,253	1,333	1,438
Totals, Government Securities.....	3,269	3,438	3,737	4,207	4,682	4,961	5,153	5,813
<b>Utilities—</b>								
Railways.....	1,406	1,366	1,270	1,174	1,105	1,040	1,055	1,018
Other (excluding public enterprises).....	743	656	691	591	605	667	758	812
Totals, Utilities.....	2,149	2,022	1,961	1,765	1,710	1,707	1,813	1,830
<b>Manufacturing.....</b>	<b>6,115</b>	<b>6,446</b>	<b>6,731</b>	<b>7,097</b>	<b>7,580</b>	<b>8,380</b>	<b>9,279</b>	<b>10,017</b>
Petroleum and natural gas.....	3,727	4,029	4,384	4,749	4,854	5,268	5,719	6,009
Other mining and smelting.....	1,977	2,094	2,297	2,322	2,442	2,557	2,872	3,150
Merchandising.....	872	917	972	1,017	1,092	1,198	1,297	1,432
Financial.....	2,880	2,616	2,688	2,914	2,650	2,876	3,134	3,415
Other enterprises.....	297	348	366	363	407	485	559	605
Miscellaneous investments.....	1,428	1,696	1,753	1,771	2,057 <sup>1</sup>	2,171 <sup>1</sup>	2,264 <sup>1</sup>	2,431 <sup>1</sup>
<b>Totals, Investments.....</b>	<b>22,214</b>	<b>23,606</b>	<b>24,889</b>	<b>26,205</b>	<b>27,474</b>	<b>29,603</b>	<b>32,090</b>	<b>34,702</b>
United States <sup>2</sup> .....	16,718	18,001	19,155	20,537	21,558	23,389	25,723	28,030
United Kingdom <sup>2</sup> .....	3,359	3,381	3,399	3,348	3,460	3,512	3,518	3,576
Other countries.....	2,137	2,224	2,335	2,320	2,456	2,702	2,849	3,096

<sup>1</sup> Includes Columbia River Treaty receipts.<sup>2</sup> Includes some investments held for residents of other countries.

**26.—Foreign Capital Invested in Canada, by Type of Investment, classified by Estimated Distribution of Ownership, as at Dec. 31, 1966 and 1967**

NOTE.—Common and preferred stocks are at book values as shown in the balance sheets of the issuing companies; bonds and debentures are valued at par; and liabilities in foreign currencies are converted into Canadian dollars at par of exchange.

Year and Type of Investment	Estimated Distribution of Ownership			Total Investments of Non-residents
	United States <sup>1</sup>	United Kingdom <sup>1</sup>	Other Countries	
	\$'000,000	\$'000,000	\$'000,000	\$'000,000
<b>1966</b>				
Government Securities—				
Government of Canada.....	486	7	156	649
Provincial.....	3,056	73	42	3,171
Municipal.....	1,290	28	15	1,333
Totals, Government Securities.....	4,832	108	213	5,153
Utilities—				
Railways.....	427	467	161	1,055
Other (excluding public enterprises).....	703	29	26	758
Totals, Public Utilities.....	1,130	496	187	1,813
Manufacturing.....	7,788	1,083	408	9,279
Petroleum and natural gas.....	4,656	542	521	5,719
Other mining and smelting.....	2,464	209	199	2,872
Merchandising.....	913	289	95	1,297
Financial.....	2,040	524	570	3,134
Other enterprises.....	463	67	29	559
Miscellaneous investments.....	1,437 <sup>2</sup>	200	627	2,264
<b>Totals, Investments, 1966.....</b>	<b>25,723</b>	<b>3,518</b>	<b>2,849</b>	<b>32,090</b>
<b>1967</b>				
Government Securities—				
Government of Canada.....	395	12	149	556
Provincial.....	3,672	90	57	3,819
Municipal.....	1,393	29	16	1,438
Totals, Government Securities.....	5,460	131	222	5,813
Utilities—				
Railways.....	440	422	156	1,018
Other (excluding public enterprises).....	750	36	26	812
Totals, Public Utilities.....	1,190	458	182	1,830
Manufacturing.....	8,481	1,095	441	10,017
Petroleum and natural gas.....	4,905	554	550	6,009
Other mining and smelting.....	2,656	215	279	3,150
Merchandising.....	1,007	308	117	1,432
Financial.....	2,241	555	619	3,415
Other enterprises.....	500	69	36	605
Miscellaneous investments.....	1,590 <sup>2</sup>	191	650	2,431
<b>Totals, Investments, 1967.....</b>	<b>28,030</b>	<b>3,576</b>	<b>3,096</b>	<b>34,702</b>

<sup>1</sup> Includes some investments held for residents of other countries.

<sup>2</sup> Includes Columbia River Treaty receipts.

# 27.—Canadian Long-Term Investment Abroad,<sup>1</sup> by Location and by Type of Investment, 1926-69

(Millions of dollars)

Location and Type of Investment	1926	1939	1945	1949	1959	1967	1968	1969 <sup>p</sup>
<b>United States—</b>								
Direct investment.....	250	412	455	721	1,489	2,190	2,546	2,764
Portfolio Investment—								
Stocks.....	..	380	317	345	734	1,779	2,103	2,165
Bonds.....	..	121	92	98	111	188	180	183
Totals, Portfolio Investment.....	195	501	409	443	845	1,967	2,283	2,348
Miscellaneous investment <sup>2</sup> .....	..	..	5	6	15	93	101	115
Government of Canada credits <sup>3</sup> .....	—	—	—	—	—	123	90	58
Government of Canada subscriptions to international investment agencies.....	—	—	—	—	—	—	—	—
<b>Totals, United States.....</b>	<b>445</b>	<b>913</b>	<b>869</b>	<b>1,170</b>	<b>2,349</b>	<b>4,373</b>	<b>5,020</b>	<b>5,285</b>
<b>United Kingdom—</b>								
Direct investment.....	7	59	54	59	235	515	570	618
Portfolio Investment—								
Stocks.....	..	22	26	21	25	52	56	59
Bonds.....	..	21	27	19	12	15	20	21
Totals, Portfolio Investment.....	45	43	53	40	37	67	76	80
Miscellaneous investment.....	..	..	16	13	16	60	30	34
Government of Canada credits <sup>4</sup> .....	—	—	561	1,443	1,108	1,040	1,058	1,038
Government of Canada subscriptions to international investment agencies.....	—	—	—	—	—	—	—	—
<b>Totals, United Kingdom.....</b>	<b>52</b>	<b>102</b>	<b>684</b>	<b>1,555</b>	<b>1,396</b>	<b>1,682</b>	<b>1,734</b>	<b>1,770</b>
<b>Other Commonwealth Countries—<sup>5</sup></b>								
Direct investment.....	..	54	69	76	291	613	700	744
Portfolio Investment—								
Stocks.....	..	7	7	6	8	13	14	14
Bonds.....	..	15	12	8	19	27	27	27
Totals, Portfolio Investment.....	..	22	19	14	27	40	41	41
Miscellaneous investment.....	..	..	..	..	..	..	..	..
Government of Canada credits.....	—	—	—	—	35	36	77	129
Government of Canada subscriptions to international investment agencies.....	—	—	—	—	—	—	—	—
<b>Totals, Other Commonwealth Countries.....</b>	<b>..</b>	<b>76</b>	<b>88</b>	<b>90</b>	<b>353</b>	<b>689</b>	<b>818</b>	<b>914</b>
<b>Other Countries—</b>								
Direct investment.....	140 <sup>6</sup>	146	142	70	271	712	801	914
Portfolio Investment—								
Stocks.....	..	102	104	105	167	250	251	264
Bonds.....	..	51	36	36	107	242	250	223
Totals, Portfolio Investment.....	253 <sup>6</sup>	153	140	141	274	492	501	487
Miscellaneous investment <sup>2</sup> .....	..	..	—29	12	—51	546	498	536
Government of Canada credits.....	36 <sup>6</sup>	31	146	566	352	207	208	211
Government of Canada subscriptions to international investment agencies.....	—	—	—	71	65	178	209	239
<b>Totals, Other Countries.....</b>	<b>429<sup>6</sup></b>	<b>330</b>	<b>399</b>	<b>860</b>	<b>911</b>	<b>2,135</b>	<b>2,217</b>	<b>2,387</b>
<b>All Countries—</b>								
Direct investment.....	397	671 <sup>7</sup>	720	926	2,286	4,030	4,617	5,040
Portfolio Investment—								
Stocks.....	..	511	454	477	934	2,094	2,424	2,502
Bonds.....	..	208	167	161	249	472	477	454
Totals, Portfolio Investment.....	493	719 <sup>7</sup>	621	638	1,183	2,566	2,901	2,956

For footnotes, see end of table.

**27.—Canadian Long-Term Investment Abroad,<sup>1</sup> by Location and by Type of Investment, 1926-69—concluded**

Location and Type of Investment	1926	1939	1945	1949	1959	1967	1968	1969 <sup>p</sup>
<b>All Countries—concluded</b>								
Miscellaneous investment <sup>2</sup> .....	..	..	-8	31	-20	699	629	685
Government of Canada credits <sup>3</sup> .....	36	31	707	2,009	1,495	1,406	1,433	1,436
Government of Canada subscriptions to international investment agencies.....	—	—	—	71	65	178	209	239
<b>Totals, All Countries.....</b>	<b>926</b>	<b>1,421</b>	<b>2,040</b>	<b>3,675</b>	<b>5,009</b>	<b>8,879</b>	<b>9,789</b>	<b>10,356</b>

<sup>1</sup> Includes equity of non-residents in assets abroad of Canadian companies but excludes investment of insurance companies and banks (held mainly against liabilities to non-residents). <sup>2</sup> Negative amounts arise from the application of reserves against government inactive assets and short positions of Canadian financial institutions.

<sup>3</sup> Medium-term non-marketable United States government securities acquired under the Columbia River Treaty arrangements are shown from 1964. <sup>4</sup> Includes deferred interest on the United Kingdom 1946 loan agreement starting from 1956 and amounting to \$101,000,000 in 1969. <sup>5</sup> Includes investment in Newfoundland prior to 1949. <sup>6</sup> Includes investment in Other Commonwealth Countries. <sup>7</sup> New series not strictly comparable with previous years. <sup>8</sup> Includes United Nations bonds from 1962, which amounted to \$5,000,000 in 1969.

## Section 7.—Government Economic Planning Agencies

### Subsection 1.—The Economic Council of Canada

The Economic Council of Canada was established by Act of Parliament assented to on Aug. 2, 1963 (RSC 1970, c. E-1). The Council is an economic advisory body with broad terms of reference. The central feature of its duties is "to advise and recommend . . . how Canada can achieve the highest possible levels of employment and efficient production in order that the country may enjoy a high and consistent rate of economic growth and that all Canadians may share in rising living standards; to recommend what government policies . . . will best help to realize the potentialities of growth of the economy; to consider means of strengthening and improving Canada's international financial and trade position; . . . to study how national economic policies can best foster the balanced economic development of all areas of Canada; . . .".

In addition, Parliament made provision for the Council to undertake special studies at the request of the Government in areas that fall within the purview of its general terms of reference. The Council has had two such References. In its first Reference, the Government asked the Economic Council to launch an examination into prices, costs, incomes and productivity and their relationship to sustained economic growth. The Council reported to the Government and to the Canadian public on this Reference in its *Third Annual Review*. A second Reference from the Government asked the Council: "In the light of the Government's long-term economic objectives, to study and advise regarding: (a) the interests of the consumer particularly as they relate to the functions of the Department of the Registrar General (now the Department of Consumer and Corporate Affairs); (b) combines, mergers, monopolies and restraint of trade; (c) patents, trade marks, copyrights and registered industrial designs". An interim report under Sect. (a) of this Reference was published in July 1967; an interim report under Sect. (b) was published in the summer of 1969; and a third and final report under Sect. (c) was released in the winter of 1971.

The Council has no operational responsibilities. It does not implement or administer any policies or programs nor does it have the authority to make research grants, although it may make contractual arrangements with persons other than its staff for the purpose of advising and assisting the Council in the performance of its duties.

The Council consists of up to 28 members appointed by the Governor in Council, including a chairman and two directors who serve full time in their professional capacity, and up to 25 members who are selected from industry, labour, finance and commerce, agriculture and other primary industries, and the general public. The chairman and the directors



(one of whom is elected as vice-chairman by the Council) are appointed for seven-year terms. The other members are appointed for three-year terms "after consultation with appropriate representative organizations" and are intended to reflect a very wide diversity of interests from the different private sectors of the economy and different regions of the country, but they sit on the Council as individuals and not as delegates of particular organizations or groups. The Council is therefore a mixed body rather than an expert professional body, although it is served in its deliberations by an expert staff. There are no government members appointed to the Council. Under the Act, the chairman is the chief executive officer of the Council and has supervision over, and direction of, the work and staff of the Council.

The publications policy of the Economic Council is based on two provisions of the Act, one that requires the Council to publish annually a review of the medium- and long-term prospects and problems of the Canadian economy, and a second that empowers the Council to publish, as it sees fit, such studies and reports prepared for its use. These provisions enable the Council to carry out a most vital function, namely, the dissemination of information to the public as a means of stimulating informed appraisal and discussion of economic problems and policies.

The Council's publications\* fall into three broad categories: (1) the Annual Reviews which summarize the results of the Council's studies and present its conclusions and recommendations (seven of which have been issued to date); (2) Staff and Special Studies which provide more detailed statistical, technical and analytical results of the various research projects; and (3) Conference Papers and other reports.

In its *First Annual Review* the Council stated its underlying philosophy of approach in this way:—

We are concerned not with the question of inventing new forms of intervention, but rather with ordering and developing our policies and social programmes in a rational and coherent manner designed to accomplish consistently what the society has declared to be its economic and social goals. For this purpose it is essential to bring to bear the needs of the future on the decisions of today. This applies not only to decisions by governments but also to decisions in the private sector of the economy.

### Canada's Economic Potential

The Canadian economy since the Second World War has encountered at one time or another inflation, higher unemployment, slow rates of economic growth, and even crises in the balance of international payments. This experience serves well to demonstrate that the real problem is not how to achieve one particular economic or social objective, but rather how to attain all of them—consistently—at the same time. This is another way of saying that the various goals are not always compatible with one another; there is always an overriding requirement to reconcile conflicts.

\* The Reviews, like all Council publications, are available from Information Canada, Ottawa. They are: *First Annual Review: Economic Goals for Canada to 1970* (\$2.50, Catalogue No. EC21-1/1964); *Second Annual Review: Towards Sustained and Balanced Economic Growth* (\$2.75, EC21-1/1965); *Third Annual Review: Prices, Productivity and Employment* (\$2.75, EC21-1/1966); *Fourth Annual Review: The Canadian Economy from the 1960's to the 1970's* (\$2.75, EC21-1/1967); *Fifth Annual Review: The Challenge of Growth and Change* (\$2.75, EC21-1/1968); *Sixth Annual Review: Perspective 1975* (\$2.75, EC21-1/1969); *Seventh Annual Review: Patterns of Growth* (\$2.50, EC21-1/1970); and *Eighth Annual Review: Design for Decision-Making* (\$3.00, EC21-1/1971). Each year, the Council assesses the economic performance in relation to medium-term goals. The most recent assessment is contained in *Performance in Perspective: 1971* (\$1.50, EC21-1/1971-1).

Among other Council publications of more general interest are: *Business Cycles in Canada*, by Derek A. White (\$2.25, EC22-1/17); *Some Economic Aspects of Provincial Educational Systems*, by J. Cousin, J. P. Fortin, and C. J. Wenas (\$2.00, EC22-1/27); *Canadian Growth Revisited, 1950-1967*, by Dorothy Walters (\$1.50, EC22-1/28); *Population, Family, Household and Labour Force Growth to 1980*, by W. M. Illing, Y. Kasahara, F. T. Denton, and M. V. George (\$1.00, EC22-1/19); *Incomes Policies—Some Foreign Experiences and Their Relevance for Canada*, by David C. Smith (\$1.75, EC22-2/4); *Canadian Policies for Rural Adjustment: A Study of the Economic Impact of ARDA, PFRA, and MMRA*, by H. Buckley and E. Tihanyi (\$2.25, EC22-2/7); *Report on Intellectual and Industrial Property* (\$3.25, EC22-1370); *Economic Consultative Bodies: Their Origins and Institutional Characteristics*, by Paul Malles (\$3.00, EC22-1470); *Meeting Managerial Manpower Needs*, by B. A. Keys, F. G. Thompson, and M. Heath (\$1.25, EC22-1671); and *An Essay on Some Critical Aspects of the International Corporation*, by J. N. Behrman (available from the Economic Council of Canada). A complete list of Council publications is available from the Secretary, Economic Council of Canada, P.O. Box 527, Ottawa, Ontario. Also available from the Secretary are the Annual Reports of the Chairman, which include the Act establishing the Council and the membership of the Council.

Once there is general public agreement on the broad set of goals to be pursued, the next task is to define them quantitatively in accordance with Canadian circumstances and possibilities. This the Council has done, publishing "targets". These targets are not forecasts or prophecies but are intended to be measures of desirable performance of the economy—that is, concrete aims of public policy. These objectives or targets were first set out by the Council in its *First Annual Review*, were revised and updated in the *Fourth Annual Review*, and again in the *Sixth Annual Review*.

**Full Employment.**—The Council believes that, over the medium-term future, economic policies should be actively directed toward achieving 97 p.c. employment—that is, no more than 3 p.c. of the labour force unemployed. But this is not regarded by the Council as an ultimate or satisfactory goal for all time; as it has stated, "We would hope that with sustained improvement in our economic performance it may eventually become realistic to aim for an even better performance in the level of employment". The Council also emphasized that the target rate is an average annual rate allowing for seasonal variation, and is a national average within which there will be some regional variation. Considering the rapid rate of increase in the numbers of people entering the labour force in Canada—close to 240,000 persons a year, on average, between 1965 and 1975—this goal would mean that the economy would have to grow fast enough to provide 2,400,000 new jobs over that ten-year period.

**A High Rate of Economic Growth.**—In calculating a potential rate of increase in total production (and thus incomes) the Council views economic growth as arising from: (1) increases in the *quantity* and *quality* of resources (for example, more manpower and capital, and higher levels of education and more efficient equipment); and (2) increases in productivity or in the efficiency with which men and capital are used and combined.

For the period to 1975, the Council has projected an average annual growth of 5.5 p.c. in the *volume* of production of all goods and services (*volume* in the sense that price increases are deducted from the value of production). Approximately two fifths of this gain in output would come from the employment increase, with a slight increase in the average educational level of the labour force. Another one fifth, roughly, would come from increased investment by government and industry. The remaining portion of the growth rate, around one third, would stem from productivity gains. The potential growth rate of 5.5 p.c. a year is high by both historical and international standards. It implies an increase in the total volume of output from \$66,000,000,000 in 1967 to about \$100,000,000,000 by 1975. This would mean an increase in the average standard of living in Canada—that is, total income divided by total population—of approximately one third.

**Reasonable Price Stability.**—In its projections to 1975, the Council assumed that the GNP price index would rise at an average annual rate of 2 p.c. The Council said it would regard this as consistent with the attainment of a satisfactory degree of price and cost stability over the medium-term future, at least under conditions of reasonable price stability abroad, particularly in the United States. Such an average rate of price increase would imply that some demand components—government expenditures, housing and business investment in plant and equipment—would rise at a somewhat faster rate than the total and that the rate of advance in consumer prices and in export and import prices would be somewhat less. The Council added:—

We recognize that the achievement of this degree of price and cost stability will be extraordinarily difficult under conditions of high demand and high employment, as has been amply demonstrated by developments of the past three years. However, we continue to regard it as one of the basic goals towards which Canadians should continue to strive in the conduct of their economic affairs, with particular emphasis on longer-range policies designed to deal with basic structural and regional problems—that is, policies which would facilitate the consistent achievement of both our employment and price goals.

**A Viable Balance of Payments.**—After careful reappraisal in 1967, the Council concluded that the balance-of-payments goal set out in 1964 was appropriately formulated

in terms of a current account deficit (and accompanying net capital inflow) at potential input in 1970 in the order of \$1,500,000,000 to \$2,000,000,000 and that this goal is still relevant.

From the mid-1950s to the end of the 1960s, the current account deficit (and the net capital inflow) declined from close to 5 p.c. of GNP to about 1 p.c. Changes in the merchandise trade balance mainly accounted for the large relative decline in the current account balance; the trade balance shifted from a deficit equivalent to 2 p.c. of GNP in the mid-1950s to a surplus equivalent of about 2 p.c. of GNP by the end of the 1960s. Apart from 1967, the services deficit remained in a range of 2 to 3 p.c. of GNP. Over this period, net inflows of capital in long-term forms decreased significantly in relation to output (from about 4 p.c. of GNP in the mid-1950s to about 2 p.c. in the latter part of the 1960s).

From early 1969 to early 1970, virtually all of the increase in real GNP went into expanded Canadian exports. The floating of the dollar in June 1970 is attributed to Canada's decision that it would not continue to finance a very rapidly increasing volume of exchange reserves at the previous fixed rate of exchange, especially in the light of the possibility of a massive speculative inflow of capital. The huge merchandise trade surplus (about \$1,300,000,000 in the first half of 1970) and a strong capital inflow swiftly drained away the Canadian dollar balances of the Government of Canada that were required for purchasing foreign exchange accumulating in the official reserves. Policies of restraint in Canada tended to slow the growth of imports and thus contributed to the increased trade surplus.

Whether Canada can maintain medium- and longer-term balance-of-payments viability with the Canadian dollar at a level that is close to par with the U.S. dollar is an open question. The exchange rate is, in fact, a very important *price* in Canada's over-all price system, and changes in it tend to have far-reaching consequences for many parts of the economy.

**Equitable Distribution of Rising Incomes.**—This is an extremely complex goal, defying simple formulation. The Council believes that much more information is needed about the distribution of income among individuals, families and various occupational groups. For example, why do some groups receive little benefit from the general rise in incomes and living standards? What elements lie behind the vicious circle of poverty that still traps far too many people? Although some of these problems may range far beyond the field of economics, the Council has said that these difficult matters will have to be understood and faced if appropriate policies are to be devised to achieve the goal of equitable distribution of rising incomes. To date, the Council's work in this area has been concentrated on two aspects of the fifth goal, namely, regional disparities and poverty.

The problem of assuring an appropriate participation on the part of each region in the over-all process of national economic development has long been an elusive goal and a continuing concern of the people of Canada. The Council's analysis showed that over the past four decades there has been relatively little progress toward the achievement of a better balance in this respect. Despite various policies and programs, very wide disparities have continued to exist in average per capita income. Also, there have continued to be wide differences in the extent to which the human and material resources of each region have found opportunities for productive use. Although national prosperity has always tended to have a favourable influence everywhere, rapid national growth has not by itself served to bring about any significant or lasting reduction in these large and stubborn differences.

The emergence of some slack in the late 1960s and the development of more slack in 1970 is again being accompanied, as in earlier similar conditions, by the slower growth of employment and high unemployment rates in the lower-income regions. Employment growth in the Atlantic Provinces has averaged only 4,000 a year over the past three years (total employment in the Atlantic Provinces was 605,000 in 1969). Similarly, in this three-year period, employment growth in Quebec averaged less than 20,000 a year (total employment in Quebec was over 2,130,000 in 1969).



Rates of unemployment have become very high in the Atlantic Provinces, Quebec and British Columbia, in all of which the unemployment rates tend to be relatively high when slack develops in the Canadian economy generally. An unusual feature in the recent pattern of increases in unemployment rates is that the Prairie Provinces, which typically have a rate below that of Ontario, had a higher rate in mid-1970. This was a reflection of special difficulties with wheat and potash marketing and problems in the construction industry. Another unusual feature is the exceptionally high rate of unemployment in British Columbia in mid-1970, reflecting, in part, the effects on the regional economy of increased industrial disputes and perhaps also a stepped-up flow of migration to that province.

Like the objective of improved regional balance, the elimination of poverty is one aspect of the still broader goal of an equitable distribution of rising incomes. Poverty is a relative matter, and generally accepted conceptions of it vary through time and space. Poverty today is not the same as poverty in the Great Depression of the 1930s and poverty today in Canada is not the same as poverty in the underdeveloped countries of Southeast Asia. In order to get a statistical grip on the problem of poverty, the Council agreed to define it as "an insufficient access to certain goods, services, and conditions of life which are available to everyone else and have come to be accepted as basic to a decent, minimum standard of living". Thus stated, the definition begs many questions, most of which could become the subject of a long and inconclusive debate. Rather than engage in such a debate, the Council proceeded directly to a statistical embodiment of the definition sufficiently simple that it could be appreciated and judged by a broad public in relation to personal, everyday, economic experience.

On the basis of information regarding family spending patterns, so-called "poverty lines" were traced for individuals and families of different sizes. A basic assumption for the main set of estimates was that any family or individual spending more than 70 p.c. of total income on food, clothing and shelter was in a low-income situation and likely to be suffering from poverty. These poverty lines were expressed in the *Fifth Review* in terms of 1961 dollars; adjusted to dollars of 1968 purchasing power, they come out at \$1,800 a year for a single person, \$3,000 for a family of two, \$3,600 for a family of three, \$4,200 for a family of four and \$4,800 for a family of five. Obviously, these are conservative cut-offs; living standards at or just above such levels would be modest indeed.

Using income data derived from the 1961 Census, it was possible to analyse some of the characteristics such as the age, sex and education of family heads, size of family, geographical region of residence, and place of residence (metropolitan, other urban or rural) of those falling below the poverty lines. As of 1961, some 916,000 non-farm families plus 416,000 individuals were living below these levels. The total number of persons involved was 4,200,000, including 1,700,000 children under 16 years of age. In all, they accounted for some 27 p.c. of the total non-farm population of Canada in that year.

Statistics cannot adequately describe poverty but, used with care, they are capable of furnishing important clues to types of policies likely to be effective against poverty.

It is evident from the incidence figures that income is more likely to be low when one or more of the following characteristics are present: (1) the head of the family has no formal education beyond elementary school; (2) the family lives in a rural area; (3) the family lives in the Atlantic Provinces; (4) the head of the family is not a member of the labour force; (5) no member of the family worked during the year; (6) the head of the family is 65 years of age or over; (7) the head of the family is a woman. From that list, it is all too easy to form a picture of poverty in Canada that consists of a relatively few stereotyped categories, but a more balanced picture of the total low-income population of Canada is necessary. In view of the following observations, it is therefore vital in framing policy not to be over-influenced by rates of incidence: (1) 62 p.c. of the low-income non-farm families in 1961 lived in urban areas and of this group more than half lived in metropolitan areas; (2) 83 p.c. of low-income non-farm families lived elsewhere than in the Atlantic Provinces—53 p.c. of them lived in Ontario and the Western Provinces; (3) 68 p.c. of the same group of families had heads who were in the labour force for at least part of the year; (4) 76 p.c. of the group



had one or more earners in the family; (5) 77 p.c. of the family heads in the group were under 65 years of age; (6) 87 p.c. of the families in the group were headed by men. It can thus be seen that a set of anti-poverty policies directed toward major groups or geographical areas showing a very high incidence of low incomes would almost certainly fail to deal adequately with poverty.

The Council called for a more concerted and purposeful attack on poverty in Canada. The challenge, in the short run, is to alleviate conditions which today thrust many Canadian families and individuals into involuntary poverty and hold them there. In the long run, the challenge is to prevent the development of these conditions.

### Challenges for the 1970s

There are many economic challenges for Canada in the 1970s. A large number of them arise from questions about how Canadians wish to make use of their growing resources to meet the future aspirations of their society. Another group of challenges are the economic performance challenges which arise in the context of five basic economic and social goals—full employment, a high and sustained rate of economic growth, reasonable price stability, a viable balance-of-payments position, and an equitable distribution of rising incomes. The key requirement for sustained good performance in relation to these goals is that they must be achieved concurrently, even though they are not all complementary and reinforcing.

To attain potential output in 1975, GNP (in constant 1969 dollars) will need to rise at an average annual rate of about  $5\frac{1}{2}$  p.c. from 1969 to 1975. This would imply an increase (in terms of 1969 dollars) of over \$30,000,000,000 to a level of close to \$110,000,000,000 in 1975. Over the last half of the 1970s, the potential growth rate of the Canadian economy would still be high—over 5 p.c. This would imply a further increase in GNP in the latter part of the 1970s of about an equivalent real dollar magnitude, so that potential GNP by 1980 would be roughly of the order of \$140,000,000,000 (in 1969 dollars).

A very large rise in employment will be needed to reach the full-employment potential of the economy by 1975—about 1,300,000 to 1,400,000 more jobs than existed in 1970. Moreover, over the 1975-80 period, about 1,200,000 additional jobs will be required. In other words, at least 2,500,000 net new jobs will be required in Canada over the coming decade.

A new ingredient in the challenges both for adequate job creation and for productivity growth in the 1970s will be the unprecedented flow into the labour markets of high-level manpower from the post-secondary educational systems. The returns from the expansion in education could be substantial during the 1970s but greater attention needs to be directed to the possibilities here, and various adjustments are needed in the private and government sectors of the economy in order to employ effectively and productively the rapidly rising volume of high-level manpower.

No less important in the 1970s will be the challenge of reconciling good performance in price stability with good performance in relation to employment and growth potentials. Full employment and price stability have never been regarded as "either/or" objectives. Rather, the essential challenge is to pursue both of these goals together in a balanced way and in a longer-run time perspective.

The maintenance of a strong international position will also be an important performance challenge for the 1970s. Increased exports and the maintenance of adequate access to external sources of capital are needed in order to finance both the increased imports of goods and services that Canadians will demand and increased Canadian foreign investment and aid. Canada's potential in international trade in the 1970s cannot be achieved unless producers and exporters struggle unrelentingly, with appropriate supporting government policies and programs, to enhance their competitiveness in domestic and world markets. Moreover, they may well have to do so under conditions that may not be as favourable as in the 1960s, when the substantial devaluation of the Canadian dollar was an important factor strengthening the international competitive position of many industries.

The more equitable distribution of rising incomes will undoubtedly come into greater prominence as an economic and social goal in the 1970s. In particular, the challenges of reducing regional economic disparities and eliminating poverty clearly need, and will claim, increasing emphasis.

### Commercial Policy Issues in the 1970s

Against the background of a substantial reduction in trade barriers since the Second World War, Canada, like other industrial countries, has come to rely more and more on foreign trade to sustain and improve its economic performance. Many factors besides commercial policy have, of course, contributed to Canada's trade growth, including the growth of domestic markets which have provided a stronger base for successful export expansion in various industries. Exports now equal about half the goods of Canada's goods-producing industries, and nearly half the goods supplied to Canadians are imported. Growth of exports and imports facilitates more efficient use of productive resources, permits greater specialization, and helps to reduce costs and to increase real income per capita.

A strong upsurge of Canadian exports in the 1960s was led for the first time by advanced manufactures, and sustained by rising sales of industrial materials. Automotive and other highly manufactured products accounted for about 40 p.c. of the export total in 1969.

In the past, Canadian commercial policy focused strongly on two themes: (1) negotiation of reduced tariff and other barriers to its exports to foreign countries, particularly for resource-based products in which it was considered that Canada had a "natural advantage"; and (2) the maintenance of protection for a considerable range of manufactured products. Only in more recent years, with the advent of the Kennedy Round and the special trade arrangements with the United States, has there been some tendency to focus on *free* trade opportunities for exports and imports of manufactured products in order to gain the benefits of specialization and large-scale production in the more advanced manufacturing industries.

There are good economic reasons for dissatisfaction with some of the results of Canada's commercial policies—in particular the emergence of a high-cost structure of production for advanced manufactures. Canada's manufacturing industries are often characterized by small-scale—and, more important, by rather specialized—production and by high unit costs, despite their advantages in supplies of basic materials and labour and their access to first-rate technology.

There are four essentially unresolved problems from the 1960s that remain to be tackled internationally: (1) improved arrangements for agricultural trade, particularly wheat, feed grains and beef; (2) the reduction of non-tariff distortions in trade; (3) special trade arrangements for developing countries; and (4) the modification of the preferential tariff system and the resolution of other trade problems that would arise from British entry into the European Economic Community. Beyond these more immediate tasks, there is the more fundamental issue of how Canada will respond to the "new generation" of big industrial markets, big international firms, and the acceleration of technological change. Access to a large market for industrial products will undoubtedly be even more important in the future than it has been in the past.

It is relevant to recall that Canada's position among industrial countries has special features: Canada is one of the few industrial countries without duty-free access to a large market for all its manufactured products; Canada has some special trade arrangements with the United States which provide an integrated market for some manufactured products; and Canadian duties in several trade sectors are sufficiently high for this country to be regarded now as having a relatively high tariff.

In summary, the Council discerns three broad alternative paths along which world commercial policy could develop: (1) a continued, gradual reduction of trade barriers such as occurred between 1947 and 1967; (2) a positive and constructive response by the United

States and the EEC to the issue raised by the creation of a huge trading bloc in Western Europe; and (3) a possible turn toward protectionist trade policies on the part of the United States and/or the EEC.

### Patterns of Growth

One of the Council's principal duties is to advise on how to achieve high, stable, sustained and widely shared growth in the economy. This mandate implies that economic growth, especially productivity growth, provides an essential basis for meeting human needs and aspirations of many kinds—not only those reflected in material living standards but also broader human and social aims in health and education, the reduction of large-scale poverty, and other diverse goals. Since the inception of its work, the Council has devoted considerable effort to the development of improved understanding of the nature and sources of growth and is continuing its work in this field by focusing attention on industrial growth patterns. The present analysis is directed mainly at clarifying the basic elements in growth of labour and capital and the efficiency with which these have been used in major groups of industries over the past two decades.

The focusing of attention on industrial growth patterns is an initial step toward the future development of potential output analysis on an industry basis, taking into account various important interrelationships between industries. Such analysis should provide, by industries, estimates of future growth of output, investment and employment, consistent with potential output for the whole economy.

For present purposes, ten "industry" groups under three broad headings have been chosen: (1) the *primary* industries, with agriculture, forestry and fishing treated as one group; (2) four groups of other *goods-producing* industries—mining, oil and gas, manufacturing, construction and utilities—as a second group; (3) five *service* industries—transportation, storage and communication, trade (wholesale and retail), finance, insurance and real estate, community, business and personal services, and public administration.

The Council calculated trends in annual growth rates of output by industry group for the 1946-67 period. With the exception of the primary group, the over-all growth rates in current dollars for all industries fell into a range of 7 to 10 p.c.; for agriculture, forestry and fishing combined, the growth rate was only about 2 p.c. Also, a rough estimate was made of what portion of the over-all growth rate was due to price increases. The general pattern is that the output of the goods industries grew more rapidly in real terms and had a lower price component; utilities and mining had the highest rates of growth in real output and relatively very small increases in prices; and in the service industries the price advance was generally much more pronounced.

### Components of Growth

The growth analysis of these ten parts of the economy will follow the same approach used in the Council's earlier examinations of over-all economic growth. In this framework, growth is traced to changes over time in three broad groups of elements—labour, capital and factor productivity.

There appears to be an association between the scale of price increases indicated in some industries over the 1946-67 period and the extent to which these industries relied on particular growth elements more than on others. In general, price increases were less pronounced in the industry groups that experienced relatively high rates of growth in factor productivity. Price increases were highest over that period in the construction, trade, public administration, financial, and community, business and personal service industries, and they generally obtained much of their growth over the postwar period with higher labour inputs and relatively little improvement in factor productivity.

In the mining and utilities groups, increases in capital stock accounted for well over half their total growth in the 1946-67 period and both groups had substantial gains in factor productivity and the lowest rates of price increase over that period.



The transportation, storage and communication industry, with a fairly small reliance on capital stock increases for its over-all growth, experienced a situation in which factor productivity accounted for about 60 p.c. of its total gain in average annual real output over the two decades.

### Structural Shifts

The largest part of Canada's labour force is now engaged in the production of services. Since the end of the Second World War, these service industries have increased their share of total Canadian employment from about 40 p.c. to almost 60 p.c. Their proportion of the total value of output, which was approximately 50 p.c. in 1946, now is also approaching 60 p.c.

### Subsection 2.—The Department of Regional Economic Expansion

The Department of Regional Economic Expansion, which is responsible for Federal Government efforts to overcome regional economic disparities, came officially into existence on Apr. 1, 1969. However, the process of forming the new Department began in July 1968 with the bringing together of a number of existing agencies and programs concerned with regional development.

These programs and agencies included the Agricultural and Rural Development Act (ARDA) and the Fund for Rural Economic Development (FRED) from the Department of Forestry and Rural Development; the Area Development Agency (ADA) from the (then) Department of Industry; the Atlantic Development Board (ADB); the Experimental Projects Branch (Canada NewStart Program) from the Department of Manpower and Immigration; and the Prairie Farm Rehabilitation Administration (PFRA) from the Department of Agriculture. The Minister at the same time became responsible for the Cape Breton Development Corporation (DEVCO), and the National Capital Commission (NCC).

The new Department was formally created under the authority of the Department of Regional Economic Expansion Act (RSC 1970, c. R-4), and this legislation also provides the Department with the first of two major new weapons in the fight against regional disparities. This is the authority to prepare and implement, in co-operation with the provincial governments and other federal agencies, development plans and programs designed to meet the special needs of areas where the growth of employment and incomes was lagging behind other parts of Canada. The second major piece of legislation, the Regional Development Incentives Act (RSC 1970, c. R-3), was approved by Parliament in July 1969. This provides a strong and effective program of industrial incentives to encourage manufacturing and processing industries to establish, expand or modernize in "designated" parts of the country where new jobs are badly needed. The original designated regions included all of the Atlantic regions with the exception of Labrador, much of eastern Quebec, and parts of every other province.

The Act was amended in December 1970. The amendments provided for broader and stronger incentives to regional development in the form of loan guarantees for manufacturing and processing facilities and selected new commercial operations such as business offices, warehousing and freight-handling facilities, shopping centres, convention facilities, hotel accommodation, and recreation facilities. The amendment also introduced a special incentive which can be offered for plants brought into production not later than Dec. 31, 1973. The special incentive was made available in the counties of Stormont, Glengarry and Prescott in eastern Ontario and the southwestern portion of Quebec not previously designated. In the Atlantic Provinces this special incentive is available in addition to the regular incentives.

The over-all program provides for incentive grants of up to \$30,000 per job or one half of the capital to be employed in the operation, whichever is less. The amount of incentive offered in an individual case is determined on the basis of an assessment of the various financial and economic implications of each project. Factors analysed include such things as the economic impact of the project on the region concerned and the company's need for



an incentive in order to create a viable operation in the designated region. Experience to date has shown that the incentives available under the program are able to exert a strong pull on industry to undertake new activity in the designated regions. In the period from the introduction of the program in July 1969 to Aug. 31, 1971, 735 applicants accepted offers of incentives. These projects will involve an estimated total investment of \$616,000,000 and create approximately 32,600 new jobs in various parts of the country when they go into production. The total value of the incentives offered in these cases is approximately \$140,000,000.

**"Special Area" Program.**—To make industrial incentives as effective as possible in overcoming regional disparities, there must be centres in the slow-growth regions which are attractive sites for industrial and population growth. These centres must be able to provide the utilities and services that industry requires, as well as a wide variety of social facilities to meet the needs of a growing population. Therefore, one of the major purposes of the Department's "special area" program is to ensure and speed the development of such centres by helping the provincial government to build up the essential municipal services.

Under the program authorized by Part IV of the Government Organization Act, 1969, special areas can be designated by the Federal Government, in co-operation with the province concerned, where it is determined that special action is needed to promote economic expansion and social adjustment. The "special action" involved is a development approach designed, through federal and provincial co-operation, to meet the needs of the area concerned. Therefore, the type of federal action will vary from area to area according to the need.

The first 22 special areas under the program were designated in March 1970 and federal-provincial agreements were signed covering specific infrastructure development projects beginning in 1970 in 18 of these areas. In the four other areas, the main federal assistance will be in the form of incentives to industry. A 23rd special area, St. Scholastique, was designated in February 1971 and infrastructure projects for that area were included in an amended Special Areas Agreement with Quebec.

The agreements commit the Department to provide the various provinces with a total of up to \$375,000,000 in grants and loans over the period up to June 1972, June 1973 or June 1975, depending upon the designated period and funding arrangement for each special area. This is additional to any federal money that may be provided in industrial incentives. The agreements provide for the inclusion of other jointly identified projects up to June 1975 or for the joint preparation of further development plans for areas not already designated up to June 1975. In addition there will be consultation with the provinces regarding the possible designation of further special areas in the future.

**Agriculture and Rural Development Act (ARDA).**—ARDA is a federal-provincial shared-cost program with provisions for rural development and adjustment programs in which all provinces have participated since its introduction in 1962. The program has operated under two separate federal-provincial agreements, the first covering the period to 1965 and the second the 1965-70 period. Five-year ARDA agreements, for the 1970-75 period, were signed with Ontario and British Columbia in May 1970. New agreements for the 1970-75 period have also been signed or are expected with all other provinces except Prince Edward Island, which is covered by a comprehensive rural development plan. New special agreements which emphasize programs for disadvantaged people of Indian and metis ancestry have also been signed with Manitoba and Alberta. A similar agreement is also expected to be signed with Saskatchewan.

**Canada Land Inventory (CLI).**—By Privy Council Order PC 1971-958, May 18, 1971, the Canada Land Inventory and the Geographic Information System were transferred from the Department of Regional Economic Expansion to the Department of the Environment. The effective date of transfer was July 1, 1971.

**Fund for Rural Economic Development (FRED).**—FRED was a federal fund of \$300,000,000, established in 1966 to finance comprehensive federal-provincial development plans in various parts of the country. The FRED legislation was replaced, when the Department of Regional Economic Expansion was established, by the “special area” powers given to the Department. Therefore, no new programs will be initiated under FRED but the five programs already in operation, for terms ranging from five to 15 years, will continue to completion, with financing through the Department’s annual estimates: the northeast and Mactaquac areas of New Brunswick; the Lower St. Lawrence–Gaspé area of Quebec; the interlake area of Manitoba; and the whole of Prince Edward Island.

**Prairie Farm Rehabilitation Administration (PFRA).**—Since its creation in 1935, PFRA has turned 2,500,000 acres of marginal and submarginal land into community pastures, and has been instrumental in the construction of many large irrigation and water-control projects, notably the Bow River and St. Mary irrigation schemes in Alberta, the South Saskatchewan River Project, the Shellmouth Dam and the Portage Diversion Project. At the farm level, PFRA has assisted 100,000 “dugout” projects for irrigation, stock-watering and domestic water supplies. It has also distributed, free of charge, up to 10,000,000 seedlings a year for farm shelterbelts. PFRA continues as an entity within the organization of the Department of Regional Economic Expansion and has been given new responsibility in implementing departmental programs in the Prairie Provinces.

**Canada NewStart Program.**—Part of the function of the Department’s Social and Human Analysis Branch is to serve as the federal arm of “Canada NewStart” by helping to devise, test and apply programs that will motivate and train disadvantaged adults for stable and rewarding employment. Professional staff act as consultants to the six NewStart corporations that have been established in areas of New Brunswick, Nova Scotia, Prince Edward Island, Manitoba, Saskatchewan and Alberta.

**Newfoundland Resettlement Program.**—This is a federal-provincial shared-cost program established to help people in Newfoundland move from areas where economic prospects are poor to other parts of the Island where there are better employment opportunities and public services.

**Atlantic Development Council.**—The Atlantic Development Board ceased to exist with the passage of the Government Organization Act, 1969, but projects begun by it are being continued by the Department. The Board’s former advisory role is carried on by the new 11-member Atlantic Development Council, appointed by the Federal Government in consultation with the governments of the Atlantic Provinces. It advises the Minister of Regional Economic Expansion with regard to plans and programs for economic and social development and their effects on the region.

**Canadian Council on Rural Development (CCRD).**—The function of the CCRD is to advise the Minister of Regional Economic Expansion on rural development policies; it is composed of representatives of private organizations concerned with rural development, who are appointed by the Minister to serve on the Council.

### **Subsection 3.—The Cape Breton Development Corporation**

The Cape Breton Development Corporation was created by an Act of Parliament, assented to on July 7, 1967 (RSC 1970, c. C-13) and came into existence by proclamation on Oct. 1, 1967, as a proprietary Crown corporation. The Corporation was established to promote and assist the financing and development of industry on the Island and to provide employment outside the coal-producing industry to broaden the base of the economy of the Island.

The Corporation has acquired the former interests of the major coal producer in the Sydney coalfield and, in accordance with its approved plan as required by Sect. 17 of the Act, is operating and reorganizing four mines with a view to the rationalization of coal production.

The Act provides for a board of directors, comprised of a chairman, a president and five other directors. Head office is located in Sydney, N.S. The Corporation reports to Parliament through the Minister of Regional Economic Expansion. Its operations are financed by the Government of Canada with some assistance from the Government of Nova Scotia for industrial development projects.

#### **Subsection 4.—Provincial Government Economic Planning Agencies**

In a number of provinces, economic planning agencies have been set up or are in the formative stage. Only those that are currently active are described here. Other sources of information on economic planning are listed in the Directory of Sources of Official Information in Chapter XXVI, under the heading "Economic Planning".

#### **Nova Scotia Voluntary Planning Board**

The Voluntary Planning Board (VPB), formed by an Act of the provincial legislature in 1963, is an autonomous body and represents non-government elements in the community. It was set up to enable the private sector to participate in the provincial planning process on a purely voluntary basis. Its purpose is to assist the government in preparing a development strategy for the province.

During the first years of its existence, it was, in effect, the only economic planning group in the province; it completed its first plan for the economic development of Nova Scotia in 1966. This plan, which set a number of growth targets for the provincial economy and outlined policies for future growth, emanated largely from the private sector and was advisory to the government. The Board, however, was not set up to handle the on-going economic planning for the province. This function has now been assumed by the provincial Department of Development.

The Board's inputs into the provincial development planning process are: (1) policies, strategies, proposals and/or recommendations emanating from segment and sector committees are channelled through the Board to the government; and (2) simultaneously with (1), draft papers prepared by the government are forwarded to the Board for consideration at the sector and segment level. The relationship between government planners and the "grass-roots" are now maintained by nine sector committees and 38 segment committees served by VPB sector secretaries. About 700 people serve under the Board.

#### **Quebec Planning and Development Bureau**

An Act passed by the provincial legislature in June 1968 authorized the establishment of the Quebec Planning Bureau, which was set up in the same year. Under amending legislation of June 9, 1969, this organization became the Quebec Planning and Development Bureau, a corporate body administered by a director-general, who is chairman, and five other members appointed by the Lieutenant-Governor in Council. It is authorized to act as an agent of government in the acquiring or disposing of goods on behalf of the government.

The functions of the Bureau are: to prepare plans, programs and projects for economic and social advancement and for area development, with the object of making the best possible use of the natural and human resources of the province, and in so doing to gather required information from provincial government departments and agencies on their policies, programs, projects and accomplishments; to undertake or commission research, studies, surveys and inventories, the results of which are needed to carry out its functions, and to co-ordinate like activities of other departments and agencies; to make recommendations to the government based on its own research and studies and advise the government



on policies and programs prepared by other departments and agencies; to direct and implement the execution of any plan, program, project or development with which it is charged by the Lieutenant-Governor and to act as liaison between the departments or agencies involved; and to administer the funds made available to be used for the carrying out of its projects.

The Bureau is responsible for administering three main agreements: (1) the Canada-Quebec Co-operation Agreement for Development of the Lower St. Lawrence, Gaspé and Magdalen Islands, covering the period 1971-76, which operates under the FRED program and replaces the 1968 Agreement on Eastern Quebec; additional funds made available at time of revision of the agreement permit a shift in emphasis to development programs; (2) the Canada-Quebec Federal-Provincial Rural Agreement, 1971-75, which operates under the ARDA program, makes funds available to speed up implementation of an integrated resource-development program in the Saguenay-Lac St. Jean and northwestern Quebec areas; and (3) the Canada-Quebec Federal-Provincial Agreement Concerning the Development of Special Areas, which covers development in the Quebec City, Trois-Rivières and Sept Îles-Port Cartier regions as well as in the sub-region of the new Montreal International Airport. (See also p. 1224.)

The Act authorized the establishment of an Interdepartmental Planning and Development Council comprised of all deputy ministers of the Quebec Government which will act as adviser to the Bureau on the conduct of its affairs. The Act also authorized the establishment of a second consultative group, the Quebec Planning and Development Committee, which was set up in 1971. Whereas the Interdepartmental Council is formed from governmental administrative circles, the Committee represents the popular sector and brings together Quebec socio-economic organizations, major specialized councils, regional representatives and special members. These two agencies advise the Bureau on subjects referred to them for consultation; however, the Act stipulates that the Bureau must indicate to the Council how it proposes to carry out its duties as liaison office for the implementation of plans, programs or projects.



A 1,225-foot wharf built at Lévis to serve a new \$80,000,000 oil refinery at St. Romuald, Que. The refinery, the first in the Quebec City region, has a capacity of 100,000 bbl. a day.



### The Ontario Economic Council

The Ontario Economic Council was formed initially by Order in Council on Feb. 1, 1962, and established by An Act to Establish the Ontario Economic Council on May 30, 1968. The Council was conceived as a vehicle whereby representatives of a broad cross-section of knowledgeable persons throughout the province could pool their information and experience regarding social and economic matters, commission research and formulate policy recommendations to the public and private sectors.

Twenty-one Ontario citizens serve as members of the Council, representing a cross-section of the Ontario community including business, finance, labour, agriculture, universities and government. Each member serves without compensation for a term of one, two or three years. The Council meets monthly in Toronto.

Essentially, the Council operates as an advisory body to the Government of Ontario. Some of its findings are reported directly to the government; other reports and recommendations are published and distributed more widely. Recent reports cover the fields of immigration, forestry policy, reform of government, poverty, transfer taxation, land-use planning, municipal reform and urban waste disposal. Also published, annually between 1965-69 and now biennially, is an index of research projects carried on within provincial government agencies and departments and certain industrial companies operating in Ontario.

The Council shares the view of the Government of Ontario that the economy of Ontario is not an entity separate from Canada. For this reason the Council does not undertake separately for Ontario what the Economic Council of Canada has done and is doing for Canada as a whole. Projects are undertaken with the Economic Council of Canada on a co-operative basis and information is exchanged between the two Councils. Another way in which the Ontario Economic Council pursues its responsibilities is through the work of *ad hoc* committees which involve a broad cross-section of the Ontario community.

A small permanent Council staff undertakes direct assignments and superintends the design and administration of projects assigned to others. Close contact with government departments avoids unnecessary duplication of effort. Research facilities, academic personnel and graduate students in Ontario universities have been used for certain projects, which have included the professional services of members of the departments of economics, political science, geography and business administration in provincial universities. From time to time, the Council engages the professional services of private consulting firms.

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# CHAPTER XXIV.—BANKING, OTHER COMMERCIAL FINANCE AND INSURANCE

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*The interpretation of the symbols used in the tables throughout the Year Book will be found on p. vii of this volume.*

## PART I.—BANKING AND OTHER COMMERCIAL FINANCE

### Section 1.—Banking

#### Subsection 1.—The Bank of Canada\*

Canada's central bank, the Bank of Canada, began operations on Mar. 11, 1935, under the terms of the Bank of Canada Act of 1934 which charged it with the responsibility for regulating "credit and currency in the best interests of the economic life of the nation", and conferred on it specific powers for discharging this responsibility. Through the exercise of these powers, the Bank broadly determines the combined total of the most common forms of Canadian money held by the community—chartered bank deposits and currency. The 1967 revision of the Bank of Canada Act contained a number of technical amendments designed to assist the Bank in discharging its responsibilities and account is taken of these changes in the following description of the Bank's operations.

The provisions of the Bank of Canada Act enable the central bank to determine the total amount of cash reserves available to the chartered banks as a group and thus to control the rate of expansion of the total assets and deposit liabilities of the banking system

\* Revised (December 1971) by the Department of Banking and Financial Analysis of the Bank of Canada.

as a whole. The Bank Act, which regulates the operation of the chartered banks, requires that each chartered bank maintain a stipulated minimum average amount of cash reserves, calculated as a percentage of its Canadian dollar deposit liabilities, in the form of deposits at the Bank of Canada and holdings of Bank of Canada notes. (The minimum cash reserve requirement, which came into effect under the new legislation beginning Feb. 1, 1968, is 12 p.c. of demand deposits and 4 p.c. of other deposits.) The ability of the chartered banks as a group to expand their total assets and deposit liabilities is therefore limited by the total amount of cash reserves available. An increase in cash reserves will encourage the banks as a group to expand their total assets (which consist chiefly of loans and marketable securities) with a concomitant increase in their deposit liabilities; a decrease in cash reserves will bring about a decline in their total assets and deposit liabilities as they seek to restore their cash reserve ratios.

The chief method by which the Bank of Canada alters the level of cash reserves of the chartered banks over time, and through them the total of chartered bank deposits, is by purchases and sales of government securities. Payment by the central bank for the securities it purchases in the market adds to the cash reserves of the chartered banks as a group and puts them in a position to expand their assets and deposit liabilities. Conversely, payment to the central bank for securities it sells causes a reduction in the cash reserves of the chartered banks and requires them to reduce their holdings of assets and deposit liabilities.

The influence that the Bank of Canada exerts on credit conditions (i.e., on the interest cost and other terms of borrowing in financial markets) stems from its ability to limit the growth of bank credit and of the community's holdings of bank deposits and currency. The growth rate of the banking system is one of the factors exerting an important influence on the level of interest rates and other terms of access to credit prevailing in financial markets generally. Current credit conditions (and expectations about future trends in such conditions) in turn have an influence on business and household decisions to spend or to save. Many other factors also have an important effect on spending decisions, however, and the behaviour of the economy is subject as well to such influences as economic and financial developments abroad; the investment, price and wage policies of business firms in Canada; and the character of public policies at all levels of government with regard to expenditure and taxation. In using the powers at its disposal, the Bank attempts to help bring about credit conditions appropriate to both domestic and external conditions. Its operations must be based, not on any simple mechanical formula, but rather on continuous observation and appraisal of the constantly changing prospects for the economy as reflected in the complex pattern of economic and financial developments.

In a technical sense, the powers that the central bank possesses allow it to exert a strong influence over economic activity but, in practice, the range through which credit conditions can be permitted to vary is necessarily limited. Changes in credit conditions in Canada affect the position of some groups in the economy much more than that of others, and this uneven impact is bound to inhibit the central bank's operations. Furthermore, interest rates in Canada cannot change greatly in relation to those abroad without producing large capital movements which might complicate Canada's international payments position. These considerations suggest that monetary policy must be used in appropriate combination with other public economic policies in order to help achieve national economic goals.

Although the Bank of Canada has the power to determine the rate of growth of the combined total of currency and chartered bank deposits, it has no means of determining how much of this total is held in the form of currency and how much in the form of chartered bank deposits. This depends entirely on the preferences of the public, since bank deposits can be converted freely into notes and coin and back again.

Although the cash reserve system in Canada—which is similar to that in a number of other countries—enables the central bank to determine within broad limits the total amount of chartered bank assets and deposit liabilities, the Bank of Canada leaves the allocation of bank and other forms of credit to the private sector of the economy. Each chartered bank is free to attempt to gain as large a share as possible of the total cash re-

serves available by competing for deposits and to decide what proportion of its funds to invest in particular kinds of securities and in loans to particular types of borrowers. The influence of the central bank—based in essence on its power to expand or contract chartered bank cash reserves through its market purchases or sales of securities—is both indirect and impersonal and is brought to bear on financial conditions generally through the chartered banks and the numerous inter-connected channels of the capital market.

The powers of the Bank are contained in the Bank of Canada Act, 1934, revisions in which were made in 1936, 1938, 1954 and 1967, now included in RSC 1970, c. B-2. Some of these powers are outlined below.

The Bank may buy or sell securities issued or guaranteed by Canada or any province, short-term securities issued by Britain, treasury bills or other obligations of the United States and certain types of short-term commercial paper. The Industrial Development Bank Act authorizes the Bank to purchase securities issued by that institution. The Bank may buy or sell gold, silver, nickel and bronze coin, or any other coin, and gold and silver bullion as well as foreign exchange and may accept non-interest-bearing deposits from the Government of Canada, the government of any province, any chartered bank and any bank regulated by the Quebec Savings Bank Act. The Bank may open accounts in other central banks. It may accept deposits from other central banks, the International Monetary Fund, the International Bank for Reconstruction and Development, and any other official international financial organization, and it may pay interest on such deposits. The Bank does not accept deposits from individuals nor does it compete with the chartered banks in the commercial banking field. The Bank acts as the fiscal agent for the Government of Canada in the payment of interest and principal and generally in respect of the management of the public debt of Canada. The sole right to issue paper money for circulation in Canada is vested in the Bank.

The Bank of Canada may require the chartered banks to maintain, in addition to the legal minimum cash reserve requirement mentioned above, a secondary reserve which the Bank may vary within certain limits. The secondary reserve, which consists of cash reserves in excess of the minimum requirement, treasury bills and day-to-day loans to investment dealers, cannot be more than 6 p.c. of total deposits when first introduced nor can it exceed 12 p.c.; effective December 1971, the required level was  $8\frac{1}{2}$  p.c. In the event the Bank wishes to introduce or increase the secondary reserve requirement, one month's notice to the chartered banks is required; the amount of any increase in the requirement cannot exceed 1 p.c. per month. In the case of a lowering of the secondary reserve requirement, however, the percentage change in any one month is not restricted.

The Bank of Canada may make loans or advances for periods not exceeding six months to chartered banks, or to banks to which the Quebec Savings Bank Act applies, on the pledge of certain classes of securities. Loans or advances may be made under certain conditions and for limited periods to the Government of Canada or of any province. The Bank of Canada is required to make public at all times the minimum rate at which it is prepared to make loans or advances; this rate is known as the Bank Rate. From Nov. 1, 1956 until June 24, 1962, the Bank Rate was established weekly at a fixed margin of  $\frac{1}{4}$  of 1 p.c. above the latest weekly average tender rate for 91-day treasury bills. Since June 24, 1962, the Bank Rate has been fixed from time to time as follows:—

<i>Date of Change</i>	<i>Per Cent per Annum</i>	<i>Date of Change</i>	<i>Per Cent per Annum</i>	<i>Date of Change</i>	<i>Per Cent per Annum</i>
June 24, 1962....	6.00	Apr. 7, 1967....	4.50	June 11, 1969....	7.50
Sept. 7, 1962....	5.50	Sept. 27, 1967...	5.00	July 16, 1969....	8.00
Oct. 12, 1962....	5.00	Nov. 20, 1967...	6.00	May 12, 1969....	7.50
Nov. 13, 1962....	4.00	Jan. 22, 1968....	7.00	June 1, 1970....	7.00
May 6, 1963....	3.50	Mar. 15, 1968....	7.50	Sept. 1, 1970....	6.50
Aug. 12, 1963....	4.00	July 2, 1968....	7.00	Nov. 12, 1970....	6.00
Nov. 24, 1964....	4.25	July 29, 1968....	6.50	Feb. 15, 1971....	5.75
Dec. 6, 1965....	4.75	Sept. 3, 1968....	6.00	Feb. 24, 1971....	5.25
Nov. 14, 1966....	5.25	Dec. 18, 1968....	6.50	Oct. 25, 1971....	4.75
Jan. 30, 1967....	5.00	Mar. 3, 1969....	7.00		



From June 24, 1962 to Nov. 12, 1970, the Money Market Rate—the rate at which the Bank of Canada is prepared to enter into purchase and resale agreements with money-market dealers—was either  $\frac{1}{4}$  of 1 p.c. above the average rate on 91-day treasury bills at the preceding weekly tender or the Bank Rate, whichever was lower; since Nov. 12, 1970, the minimum rate is the Bank Rate less  $\frac{3}{4}$  of 1 p.c.

The Bank of Canada is not required to maintain gold or foreign exchange reserves against its liabilities.

Prior to the 1967 amendment of the Bank of Canada Act, there existed some uncertainty about the exact relationship between the central bank and the Government. The changes in the Bank of Canada Act in 1967 were designed to clarify this matter. They provide for regular consultation between the Governor of the Bank and the Minister of Finance as well as for a formal procedure whereby, in the event of a disagreement between the Government and the Bank which cannot be resolved, the Government may, after further consultation has taken place, issue a directive to the Bank as to the monetary policy that it is to follow. Any such directive must be in writing, it must be in specific terms, and it must be applicable for a specified period. It must be published immediately in the *Canada Gazette* and tabled in Parliament. The amendment makes it clear that the Government must take the ultimate responsibility for monetary policy and it provides a mechanism for that purpose but the central bank is in no way relieved of its responsibility for monetary policy and its execution.

#### 1. -Assets and Liabilities of the Bank of Canada, as at Dec. 31, 1966-70

Item	1966	1967	1968	1969	1970
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000
<b>Assets</b>					
Foreign exchange.....	55.2	90.9	95.9	79.4	58.0
Advances to chartered and savings banks.....	—	3.0	5.0	0.9	—
Bills bought in open market, excluding treasury bills.....	—	—	—	2.6	—
Investments—					
Treasury bills of Canada.....	409.1	538.3	453.4	477.7	621.2
Other securities issued or guaranteed by Canada maturing within 3 years.....	1,142.9	1,269.7	1,540.9	1,929.6	1,702.6
Other securities issued or guaranteed by Canada not maturing within 3 years.....	1,867.2	1,940.1	1,890.3	1,650.5	1,917.5
Bonds and debentures issued by Industrial Development Bank.....	239.8	270.2	305.0	351.3	415.6
Other securities.....	171.7	10.7	10.8	81.2	136.5
Industrial Development Bank capital stock.....	42.0	45.0	49.0	52.0	54.0
Bank premises.....	16.5	17.3	22.2	24.2	28.6
All other assets.....	262.3	226.3	263.1	238.9	471.1
<b>Totals, Assets.....</b>	<b>4,206.8</b>	<b>4,411.6</b>	<b>4,635.6</b>	<b>4,888.3</b>	<b>5,405.0</b>
<b>Liabilities</b>					
Capital paid up.....	5.0	5.0	5.0	5.0	5.0
Reserve Fund.....	25.0	25.0	25.0	25.0	25.0
Notes in Circulation—					
Held by chartered banks.....	438.1	484.6	568.9	543.5	526.1
All other.....	2,295.5	2,494.4	2,660.3	2,902.7	3,106.2
Deposits—					
Government of Canada.....	34.1	42.2	47.4	80.9	228.0
Chartered banks.....	1,111.3	1,062.0	1,114.3	1,108.8	1,176.4
Other.....	29.7	37.9	38.4	42.0	38.0
Foreign currency liabilities.....	36.9	34.8	28.3	23.6	32.6
All other liabilities.....	231.2	225.8	147.9	156.7	267.7
<b>Totals, Liabilities.....</b>	<b>4,206.8</b>	<b>4,411.6</b>	<b>4,635.6</b>	<b>4,888.3</b>	<b>5,405.0</b>

The Bank is under the management of a Board of Directors composed of a Governor, a Deputy Governor and twelve Directors. The Governor and Deputy Governor are appointed for terms of seven years each by the Directors, with the approval of the Governor in Council. The Directors are appointed by the Minister of Finance, with the approval of the Governor in Council, for terms of three years each. The Deputy Minister of Finance is a member of the Board but does not have the right to vote. There is an Executive Committee of the Board composed of the Governor, the Deputy Governor, two Directors and the Deputy Minister of Finance (who is without a vote); this Committee has the same powers as the Board except that its decisions must be submitted to the Board at its next meeting. In addition to the Deputy Governor who is a member of the Board, there may be one or more Deputy Governors appointed by the Board of Directors to perform such duties as are assigned by the Board.

The head office of the Bank is in Ottawa. It has agencies in Halifax, Saint John, Montreal, Ottawa, Toronto, Winnipeg, Regina, Calgary and Vancouver and is represented in St. John's and Charlottetown.

**The Industrial Development Bank.**—The Industrial Development Bank, a subsidiary of the Bank of Canada, was incorporated by Act of Parliament during 1944 and its banking operations commenced on Nov. 1, 1944. Its functions are described in the preamble to the Act as follows:—

To promote the economic welfare of Canada by increasing the effectiveness of monetary action through ensuring the availability of credit to industrial enterprises which may reasonably be expected to prove successful if a high level of national income and employment is maintained, by supplementing the activities of other lenders and by providing capital assistance to industry with particular consideration to the financing problems of small enterprises.

The President of the Industrial Development Bank is the Governor of the Bank of Canada and the Directors are the Directors of the Bank of Canada and the Deputy Minister of Industry, Trade and Commerce. The authorized capital of the Bank is \$75,000,000 and it may also raise funds by the issue of bonds and debentures provided that its total direct liabilities and contingent liabilities in the form of guarantees and underwriting agreements do not exceed ten times the aggregate of the Bank's paid-up capital and Reserve Fund.

The Bank may extend financial assistance to industrial enterprises in Canada which, by definition in the Act, include any industry, trade or other business undertaking of any kind. With respect to such enterprises, the Bank is empowered to lend money or guarantee loans and where an enterprise is a corporation the Bank may also enter into underwriting agreements with regard to any issue of stock, bonds or debentures; acquire stock, bonds or debentures from the issuing corporation or any person with whom the Bank has entered into an underwriting agreement; and acquire certificates issued by a trustee to finance the purchase of transportation equipment. The total amount of commitments of the Bank, in the form of loans, guarantees, etc., in excess of \$200,000 each, may not exceed \$200,000,000.

The Bank may accept any form of collateral security against its advances, including realty and chattel mortgages which constitute the usual kind of security taken. The Bank is intended to supplement the activities of other lending agencies, not to compete with them, and the Act of incorporation provides that it should extend credit only when, in the Bank's opinion, credit or other financial resources would not otherwise be available on reasonable terms and conditions. Its lending takes the form of fixed-term capital loans rather than current operating loans. The Bank is specifically prohibited from engaging in the business of deposit banking. It has branch offices in the following cities: St. John's, Halifax, Saint John, Moncton, Rimouski, Quebec, Trois-Rivières, Montreal, Sherbrooke, Ottawa, Toronto, Hamilton, Waterloo, London, Windsor, Sudbury, Thunder Bay, Winnipeg, Regina, Saskatoon, Calgary, Edmonton, Kelowna, Vancouver, Victoria and Prince George.

**2. —Assets and Liabilities of the Industrial Development Bank, as at Sept. 30, 1967-71**

Item	1967 <sup>1</sup>	1968 <sup>1</sup>	1969 <sup>1</sup>	1970 <sup>1</sup>	1971
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000
<b>Assets—</b>					
Loans outstanding <sup>1,2</sup> .....	327.2	362.6	410.0	477.0	529.3
Other assets.....	6.1	7.6	3.8	10.5	14.5
<b>Totals, Assets</b> .....	<b>333.3</b>	<b>370.2</b>	<b>413.8</b>	<b>487.5</b>	<b>543.8</b>
<b>Liabilities—</b>					
Capital and reserves.....	63.6	67.4	71.8	74.3	78.2
Bonds and debentures outstanding.....	262.5	293.6	331.5	394.1	445.5
Other liabilities.....	7.2	9.2	10.5	19.1	20.1
<b>Totals, Liabilities</b> .....	<b>333.3</b>	<b>370.2</b>	<b>413.8</b>	<b>487.5</b>	<b>543.8</b>
<b>Loan Transactions—</b>					
Disbursements <sup>1</sup> .....	96.6	105.5	122.4	151.0	156.2
Repayments <sup>1</sup> .....	61.2	63.7	74.6	81.7	100.4
Loans outstanding plus undistributed authorizations <sup>1</sup> .....	389.8	429.0	491.6	557.5	616.6
	No.	No.	No.	No.	No.
Customers on books.....	8,595	9,511	10,629	12,285	13,925

<sup>1</sup> Includes investments; the change in loans outstanding does not equal the difference between disbursements and repayments because of year-end accounting adjustments.

<sup>2</sup> Includes agreements of sale.

**Subsection 2.—Currency**

**Note Circulation.**—The development by which bank notes became the chief circulating medium in Canada prior to 1935 is described in the 1938 Year Book, pp. 900-905. Those features of the development which then became permanent are outlined in the 1941 Year Book, pp. 809-810.

When the Bank of Canada commenced operations in 1935 it assumed liability for Dominion notes outstanding. These were replaced in public circulation and partly replaced in cash reserves by the Bank's legal tender notes in denominations of \$1, \$2, \$5, \$10, \$20, \$50 and \$100. Deposits of chartered banks at the Bank of Canada completed the replacement of the old Dominion notes of \$1,000 to \$50,000 denomination that had previously been used as cash reserves. The chartered banks were required under the Bank Act of 1934 to reduce gradually the issue of their own bank notes during the years 1935-45 to an amount not in excess of 25 p.c. of their paid-up capital on Mar. 11, 1935. Bank of Canada notes thus replaced chartered bank notes as the issue of the latter was reduced. Further restrictions introduced by the 1944 revision of the Bank Act cancelled the right of chartered banks to issue or re-issue notes after Jan. 1, 1945, and in January 1950 the chartered banks' liability for such of their notes issued for circulation in Canada as then remained outstanding was transferred to the Bank of Canada in return for payment of a like sum to the Bank of Canada.

**3.—Bank of Canada Note Liabilities, as at Dec. 31, 1966-70**

Denomination	1966	1967	1968	1969	1970
	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Bank of Canada Notes—</b>					
\$1.....	109,846	129,473	136,753	140,438	145,100
\$2.....	78,874	84,513	91,188	95,950	99,847
\$5.....	196,893	209,392	223,350	229,239	235,119
\$10.....	668,153	692,823	733,695	741,249	736,715
\$20.....	983,765	1,110,604	1,230,585	1,335,474	1,455,063
\$25.....	46	46	46	46	46
\$50.....	188,131	203,239	218,300	238,352	249,762
\$100.....	471,550	508,068	549,923	613,466	654,032
\$500.....	33	33	32	31	30
\$1,000.....	23,377	27,805	32,412	39,018	43,701
<b>Totals.....</b>	<b>2,720,668</b>	<b>2,965,996</b>	<b>3,216,284</b>	<b>3,433,262</b>	<b>3,619,414</b>
Note issues in process of retirement <sup>1</sup> .....	12,966	12,944	12,927	12,914	12,903
<b>Totals, Bank of Canada Note Liabilities.....</b>	<b>2,733,634</b>	<b>2,978,940</b>	<b>3,229,211</b>	<b>3,446,176</b>	<b>3,632,317</b>
<b>Held by—</b>					
Chartered banks.....	438,090	484,566	568,923	543,452	526,081
Others.....	2,295,544	2,494,374	2,660,288	2,902,724	3,106,236

<sup>1</sup> Includes, in 1970, chartered banks' notes \$3,155,000, Dominion of Canada notes \$4,636,000, provincial notes \$28,000 and defunct banks' notes \$88,000; these amounts have changed little in recent years.

**4.—Note Circulation in the Hands of the Public, as at Dec. 31, 1961-70**

As at Dec. 31—	Bank of Canada Notes <sup>1</sup>	Per Capita <sup>2</sup>	As at Dec. 31—	Bank of Canada Notes <sup>1</sup>	Per Capita <sup>2</sup>
	\$	\$		\$	\$
1961.....	1,800,190,122	98.71	1966.....	2,295,543,656	114.69
1962.....	1,816,977,132	97.78	1967.....	2,494,373,617	122.24
1963.....	1,886,238,792	99.64	1968.....	2,660,288,295	128.24
1964.....	2,025,473,300	105.00	1969.....	2,902,725,525	137.82
1965.....	2,152,947,110	109.60	1970.....	3,106,235,669	145.31

<sup>1</sup> Total issue less notes held by chartered banks.

<sup>2</sup> Based on official estimates of population.

**Coinage.\***—Under the Currency and Exchange Act (RSC 1970, c. C-39), gold coins may be issued in the denomination of twenty dollars (nine tenths fine or millesimal fineness 900); subsidiary coins in denominations of one dollar, 50 cents, 25 cents, 10 cents (five tenths fine or millesimal fineness 500, or pure nickel); pure nickel five-cent coins; and bronze (copper, tin and zinc) one-cent coins. Provision is made for the temporary alteration of composition in the event of a shortage of prescribed metals. A tender of payment of money in coins is a legal tender in the case of gold coins issued under the authority of Sect. 4 of the Currency and Exchange Act for the payment of any amount; in the case of silver coins for the payment of an amount up to \$10; nickel coins for payment up to \$5; and bronze coins up to 25 cents.

\* Revised by the Master of the Royal Canadian Mint, Ottawa.



**5.—Canadian Coin in Circulation, as at Dec. 31, 1961-70**

NOTE.—The figures shown are of net issues of coin.

As at Dec. 31—	Silver	Nickel	Tombac <sup>1</sup>	Steel	Bronze	Total	Per Capita
	\$	\$	\$	\$	\$	\$	\$
1961.....	146,902,352	14,110,198	549,021	3,451,708	18,311,853	183,325,132	10.05
1962.....	162,928,707	16,433,088	549,009	3,450,676	20,595,543	203,957,023	10.98
1963.....	180,492,972	18,627,687	548,999	3,449,476	23,383,788	226,502,922	11.99
1964.....	206,551,965	22,522,116	548,996	3,448,547	28,009,356	261,080,980	13.57
1965.....	239,927,246	26,397,784	548,989	3,447,516	30,968,064	301,289,599	15.39
1966.....	263,556,870	27,052,019	548,987	3,446,704	33,106,994	327,711,574	16.37
1967.....	290,767,343	29,994,420	548,986	3,445,905	36,556,981	361,313,635	17.51
1968.....	316,836,513	75,463,808	548,984	3,445,019	39,705,272	435,999,596	20.82
1969.....	316,714,891	117,198,594	548,983	3,444,330	43,004,210	480,911,008	22.62
1970.....	316,609,624	137,889,750	548,977	3,443,598	46,091,524	504,583,473	23.60

<sup>1</sup> Tombac, a copper-zinc alloy, was used to conserve nickel for war purposes; no coins of this metal have been issued since 1944.

**The Royal Canadian Mint.**—The Ottawa Mint, established as a branch of the Royal Mint under the (Imperial) Coinage Act of 1870, was opened on Jan. 2, 1908. On Dec. 1, 1931, it became the Royal Canadian Mint and operated as a branch of the Department of Finance. Under the provisions of the Government Organization Act, 1969, the Mint was established as a Crown (agency) corporation, reporting to Parliament through the Minister of Supply and Services. The latter change was designed to provide for a more industrial type of organization and for flexibility in producing coins of Canada and other countries; buying, selling, melting, assaying and refining gold and precious metals; and producing medals, plaques and other devices. The Mint now operates under RSC 1970, c. R-8.

The Master of the Mint is its chief executive officer and one of a Board of seven Directors appointed by the Governor in Council. The Master of the Mint is appointed to hold office during pleasure, the Chairman of the Board is appointed for a term of four years subject to re-appointment, and the other five Directors for terms of one to three years.

Financial and budgeting arrangements are similar to those of other Crown companies carrying on industrial or commercial operations. Loans are made from the Consolidated Revenue Fund for operating and capital expenses, with the total outstanding at any time limited to \$35,000,000. Provision is made for loans for temporary purposes and a reserve is established against losses. Operations are conducted with the aim of making a small profit.

**6.—Receipts of Gold Bullion at the Royal Canadian Mint and Bullion and Coinage Issued, 1961-70**

Year	Gold Received	Gold Bullion Issued	Silver Coin Issued	Nickel Coin Issued	Bronze Coin Issued
	oz. t.	oz. t.	\$	\$	\$
1961.....	3,800,137	3,812,054	10,299,581	2,512,369	1,417,544
1962.....	3,488,974	3,520,406	16,114,240	2,324,212	2,284,925
1963.....	3,457,092	3,467,554	17,688,668	2,196,217	2,790,679
1964.....	3,188,868	3,173,573	26,153,154	3,895,746	4,626,963
1965.....	2,991,450	3,026,974	33,479,378	3,877,921	2,961,126
1966.....	2,676,402	2,631,400	23,722,162	655,948	2,140,711
1967.....	2,438,512	2,287,687	27,322,321	2,944,242	3,451,406
1968.....	2,236,722	2,221,589	26,167,289	45,472,245	3,150,062
1969.....	2,146,507	2,089,226	—	41,740,879	3,300,505
1970.....	2,113,797	2,149,889	—	20,701,513	3,089,090

**Dollar Currency and Bank Deposits.**—Bank of Canada statistics concerning currency and chartered bank deposits are given in Table 7.

**7.—Canadian Dollar Currency and Chartered Bank Deposits, as at Dec. 31, 1961-70**  
(Millions of dollars)

As at Dec. 31—	Currency Outside Banks			Chartered Bank Deposits				Total Currency and Chartered Bank Deposits <sup>1</sup>		
	Notes	Coin	Total	Personal Savings Deposits	Government of Canada Deposits	Other Deposits <sup>1</sup>	Total <sup>1</sup>	Total Including Government Deposits	Held by General Public Including Personal Savings Deposits	Excluding Personal Savings Deposits
1961.....	1,800	158	1,959	7,618	588	4,998	13,205	15,163	14,575	6,957
1962.....	1,817	177	1,994	7,932	564	5,193	13,689	15,683	15,119	7,187
1963.....	1,886	198	2,084	8,443	914	5,623	14,980	17,064	16,150	7,707
1964.....	2,025	229	2,254	8,935	696	6,164	15,795	18,049	17,353	8,418
1965.....	2,153	266	2,419	9,725	797	7,201	17,723	20,142	19,345	7,576
1966.....	2,296	293	2,589	10,248	919	7,741	18,908	21,497	20,578	10,330
1967.....	2,494	335	2,829	11,760	618	9,096	21,473	24,302	23,685	11,925
1968.....	2,660	399	3,059	13,622	669	10,507	24,798	27,857	27,188	13,566
1969.....	2,903	434	3,337	15,030	1,308	9,540	25,878	29,214	27,906	12,876
1970.....	3,106	461	3,568	16,615	1,257	10,972	28,845	32,412	31,155	14,540

<sup>1</sup> Less total float, i.e., cheques and other items in transit.

### Subsection 3.—The Chartered Banks

Canada's commercial banking system consists of nine privately owned banks. Eight have been in operation for many years and one commenced operations in July 1968. At the end of December 1970, these banks operated 6,200 banking offices in Canada and 270 abroad. Canadian chartered banks engage in a very wide range of activities; they accept various types of deposits from the public including accounts payable on demand, both chequing and non-chequing, notice deposits and fixed-term deposits. The banks, in addition to holding a portfolio of securities, make loans under a wide variety of conditions for commercial, industrial, agricultural and consumer purposes. They also deal in foreign exchange, receive and pay out bank notes, provide safekeeping facilities and perform a variety of other services. For the most part, these operations are carried out in Canada by the extensive network of bank branches. The head offices of the banks confine their activities largely to general administration and policy-making functions, the management of the banks' investment portfolio and related matters. A detailed account of the branch banking system in Canada is given in the 1967 Year Book, pp. 1126-1128.

All banks operating in Canada are chartered (i.e., licensed) by Parliament under the terms of the Bank Act. The Act regulates certain internal aspects of bank operations such as the auditing of accounts, the issuing of stock, the setting aside of reserves and similar matters. In addition, the Bank Act regulates the banks' relationship with the public, the Government and the Bank of Canada.

It has been the practice in Canada to revise the Bank Act at approximately ten-year intervals. The most recent revision was enacted by Parliament early in 1967 and came into effect on May 1 of that year. The remainder of this Subsection deals with the principal changes incorporated in the new Bank Act.

Acceptance by the Government of some of the main recommendations of the Royal Commission on Banking and Finance for increased competition and flexibility in the Canadian banking system was reflected in various new Bank Act provisions. These imposed certain restrictions on corporate and other relationships between banks and other financial institutions, while removing certain existing restrictions on the banks' operations which had placed them at some competitive disadvantage in recent years compared with their principal financial competitors.

In the past, various forms of intercorporate financial relationship between chartered banks and other financial enterprises had developed in Canada. In some instances this involved investment by banks in the shares of these enterprises, and vice versa; in others the relationship involved interlocking directorships. These practices are severely restricted under the terms of the 1967 Bank Act, which limits bank ownership of any Canadian corporation to 10 p.c. of the voting shares and also provides that no more than one fifth of the directors of any company may become directors of a bank. In addition, after a two-year period a director of a trust or mortgage loan company which accepts deposits from the public may not be appointed or elected a director of a bank. In order to ensure that competition is not curtailed by agreements among the banks on interest rates to be paid on deposits or charged for loans, the 1967 Bank Act prohibits the making of such agreements (except with the consent of the Minister of Finance). At the same time the provision that was formerly in the Bank Act limiting to 6 p.c. the interest rate which chartered banks could charge on loans was abolished effective Jan. 1, 1968. Under the 1967 Bank Act, the determination of interest rates on loans and deposits is left to market forces.

The 1967 Bank Act also granted the banks new mortgage-lending powers, permitting them to charge current rates of interest on mortgage loans under the National Housing Act, and also, for the first time, to make conventional residential mortgage loans. In the case of conventional residential mortgages, the amount of an individual mortgage cannot exceed 75 p.c. of the appraised value of the property. After 1973 the maximum amount of a bank's assets to be held in the form of conventional residential mortgages must not be more than 10 p.c. of the bank's Canadian dollar deposit liabilities plus debentures. In the interval, the percentage limitation will rise by 1 p.c. each fiscal year; it was 4 p.c. until Oct. 31, 1968 when it rose to 5 p.c. for the subsequent fiscal year and will so continue until the 10-p.c. maximum is reached.

The banks have also been given authority to issue their own debentures with an original term to maturity of at least five years; such securities are not subject to a reserve requirements and rank in priority after deposit liabilities. The amount of debentures that any bank may have outstanding is limited by restricting the increase per annum to 10 p.c. of the paid-up capital and rest fund and an upper limit of one half of the bank's paid-up capital and rest fund.

The amendments to the Bank Act in 1967 contained a number of revisions respecting the ownership of Canadian chartered banks. No individual or associated shareholders may vote more than 10 p.c. of a bank's total shares outstanding and, if more than 25 p.c. of a bank's shares are owned by non-residents, the total outstanding liabilities of the bank may not exceed twenty times its authorized capital stock.

The Bank Act also stipulates the minimum statutory cash reserve requirement that the chartered banks must observe. The minimum amount of Bank of Canada notes and deposits each bank must hold as cash reserves was changed in a series of monthly steps from 8 p.c. of all Canadian dollar deposits under the old Bank Act to 12 p.c. of demand deposits and 4 p.c. of other deposits as of February 1968. In addition, the Bank of Canada was given stand-by powers to require the banks to hold a "secondary reserve" which would consist of cash in excess of their statutory requirements, holdings of treasury bills and day-to-day loans to investment dealers. When initially introduced, this secondary reserve cannot exceed 6 p.c. of a bank's deposit liabilities. Thereafter it may be increased in monthly steps of 1 p.c. to a maximum of 12 p.c. The Bank of Canada may reduce or remove such a secondary reserve at any time. Effective April 1968, the required level was 7 p.c.; effective June 1969, it was increased to 8 p.c. and, effective July 1970, to 9 p.c.; then, effective December 1971, it was reduced to 8.5 p.c.

**Branches of Chartered Banks.**—Although there are fewer chartered banks now than at the beginning of the century, there has been a great increase in the number of branch banking offices. As a result of amalgamations, the number of banks declined from 34 in 1901 to 10 in 1931, and remained at that figure until the incorporation of a new bank—

The Mercantile Bank of Canada—in 1953 brought the total to 11. Since then the amalgamation in 1955 of the Bank of Toronto and the Dominion Bank as The Toronto-Dominion Bank, the amalgamation of Barclays Bank (Canada) with the Imperial Bank of Canada in 1956 and the amalgamation of the Canadian Bank of Commerce and the Imperial Bank of Canada as the Canadian Imperial Bank of Commerce on June 1, 1961 reduced this number to eight. The Bank of British Columbia was granted a charter by Parliament in December 1966 and commenced operations in July 1968, increasing the number of chartered banks to nine. The number of branches of chartered banks in each province periodically from 1920 to 1969 is given in Table 8.

#### 8.—Branches of Chartered Banks, by Province, as at Dec. 31 for Certain Years 1920-70

NOTE.—Figures include sub-agencies in Canada receiving deposits for the banks employing them; there were 604 such sub-agencies at Dec. 31, 1970.

Province or Territory	1920	1930	1940	1950	1960	1962	1963	1964	1965	1966	1967	1968	1969	1970
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Newfoundland.....	—	—	—	39	71	81	88	90	104	107	106	111	112	114
Prince Edward Island.....	41	28	25	23	27	27	26	26	29	29	29	29	29	30
Nova Scotia.....	169	138	134	144	173	178	180	183	189	189	192	195	199	202
New Brunswick....	121	102	97	100	113	118	121	123	126	132	133	133	133	136
Quebec.....	1,150	1,183	1,083	1,164	1,427	1,489	1,515	1,539	1,580	1,604	1,604	1,574	1,535	1,524
Ontario.....	1,586	1,409	1,208	1,257	1,785	1,916	1,967	2,022	2,055	2,078	2,107	2,159	2,215	2,307
Manitoba.....	349	239	162	165	234	248	255	261	271	279	285	292	300	310
Saskatchewan.....	591	447	233	238	296	299	303	308	317	321	327	338	341	350
Alberta.....	424	304	172	246	394	417	431	445	457	462	472	485	506	521
British Columbia..	242	229	192	294	514	545	546	563	580	588	606	622	649	684
Yukon and North- west Territories..	3	4	5	9	17	14	15	15	16	17	18	18	19	21
<b>Canada.....</b>	<b>4,676</b>	<b>4,083</b>	<b>3,311</b>	<b>3,679</b>	<b>5,051</b>	<b>5,332</b>	<b>5,447</b>	<b>5,575</b>	<b>5,724</b>	<b>5,806</b>	<b>5,879</b>	<b>5,956</b>	<b>6,038</b>	<b>6,199</b>

#### 9.—Branches of Individual Canadian Chartered Banks, by Province, as at Dec. 31, 1970

NOTE.—This table includes 604 sub-agencies in Canada for receiving deposits.

Bank	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.
	No.	No.	No.	No.	No.	No.
Bank of Montreal.....	32	3	29	25	205	397
The Bank of Nova Scotia.....	48	9	59	40	73	335
Banque Canadienne Nationale.....	—	—	—	—	524	16
Banque Provinciale du Canada.....	—	2	—	19	268	25
Canadian Imperial Bank of Commerce.....	13	9	27	21	184	672
The Mercantile Bank of Canada.....	—	—	1	—	2	1
The Royal Bank of Canada.....	20	6	82	26	187	429
The Toronto-Dominion Bank.....	1	1	4	5	81	432
Bank of British Columbia.....	—	—	—	—	—	—
<b>Totals.....</b>	<b>114</b>	<b>30</b>	<b>202</b>	<b>136</b>	<b>1,524</b>	<b>2,307</b>
	Man.	Sask.	Alta.	B.C.	Y.T. and N.W.T.	Total
	No.	No.	No.	No.	No.	No.
Bank of Montreal.....	68	64	106	140	4	1,073
The Bank of Nova Scotia.....	28	40	77	87	1	797
Banque Canadienne Nationale.....	5	—	—	—	—	545
Banque Provinciale du Canada.....	—	—	—	—	—	314
Canadian Imperial Bank of Commerce.....	75	105	157	211	11	1,485
The Mercantile Bank of Canada.....	1	—	1	1	—	7
The Royal Bank of Canada.....	87	99	108	149	3	1,196
The Toronto-Dominion Bank.....	46	42	72	84	2	770
Bank of British Columbia.....	—	—	—	12	—	12
<b>Totals.....</b>	<b>310</b>	<b>350</b>	<b>521</b>	<b>684</b>	<b>21</b>	<b>6,199</b>



**10.—Branches of Individual Canadian Chartered Banks Outside Canada, as at Dec. 31, 1970**

NOTE.—This table does not include sub-agencies operating outside Canada, of which there were 55 in 1970.

Bank and Location	Number	Bank and Location	Number	Bank and Location	Number
<b>Bank of Montreal</b> .....	<b>10</b>	<b>Canadian Imperial Bank of Commerce</b> .....	<b>41</b>	<b>The Royal Bank of Canada—concl.</b>	
Britain.....	2	Britain.....	2	Britain.....	2
United States.....	5	United States.....	13	Guyana.....	6
Germany.....	3	Antigua.....	1	Haiti.....	1
<b>The Bank of Nova Scotia</b> .....	<b>61</b>	Bahamas.....	4	Jamaica.....	12
Antigua.....	1	Barbados.....	2	Puerto Rico.....	6
Bahamas.....	7	Cayman Islands.....	1	Trinidad.....	12
Grenada.....	1	Grenada.....	1	United States.....	1
Trinidad.....	13	Jamaica.....	10	Venezuela.....	6
Barbados.....	3	St. Vincent.....	1	West Indies.....	12
Dominican Republic.....	5	Trinidad.....	5	Lebanon.....	2
England.....	4	St. Lucia.....	1		
Scotland.....	2			<b>The Toronto-Dominion Bank</b> .....	<b>4</b>
St. Lucia.....	2	<b>The Royal Bank of Canada</b> .....	<b>98</b>	Britain.....	2
Puerto Rico.....	4	Argentina.....	3	United States.....	2
U.S. Virgin Islands.....	5	Bahamas.....	10		
United States.....	2	British Honduras.....	3	<b>Banque Canadienne Nationale</b> .....	<b>1</b>
Lebanon.....	1	Cayman Islands.....	1	France.....	1
Netherlands.....	1	Colombia.....	6		
Ireland.....	2	Dominican Republic.....	12	<b>Total</b> .....	<b>215</b>
British Virgin Islands.....	1	France.....	1		
Belgium.....	1	French West Indies.....	2		
British Honduras.....	2				
Cayman Islands.....	1				
Guyana.....	1				
Greece.....	2				

**Financial Statistics of Chartered Banks.**—Chartered bank financial statistics for recent years are given in Tables 11-15; month-end data are available in the *Bank of Canada Statistical Summary*.

**11.—Statement of Chartered Bank Assets and Liabilities, as at Dec. 31, 1968-70**

Assets and Liabilities	1968	1969	1970
	\$'000	\$'000	\$'000
<b>Assets—</b>			
Gold coin and bullion.....	120,984	67,082	17,729
Other coin in Canada.....	36,117	46,894	43,215
Other coin outside Canada.....	1,135	1,673	1,390
Notes of and deposits with Bank of Canada.....	1,683,250	1,652,267	1,702,516
Government and bank notes other than Canadian.....	70,330	71,323	66,414
Deposits with banks in Canadian currency.....	35,968	147,706	168,820
Deposits with banks in currencies other than Canadian.....	3,263,205	6,380,524	7,526,478
Cheques and other items in transit (net).....	1,411,206	1,112,549	967,851
Government of Canada treasury bills, at amortized value.....	2,123,784	2,086,803	2,688,911
Other Government of Canada issued or guaranteed securities maturing within three years, at amortized value.....	1,680,262	1,326,642	1,955,866
Government of Canada issued or guaranteed securities maturing after three years, at amortized value.....	1,760,987	1,654,099	1,956,737
Canadian provincial government issued or guaranteed securities, at amortized value.....	373,495	363,642	461,407
Canadian municipal and school corporation issued or guaranteed securities, not exceeding market value.....	366,440	368,403	375,332
Other Canadian securities, not exceeding market value.....	712,277	717,630	871,376
Securities other than Canadian, not exceeding market value.....	726,959	783,461	670,839
Mortgages and hypothecs insured under the National Housing Act 1954.....	830,990	998,874	1,100,352
Day, call and short loans to investment dealers and brokers in Canadian currency, secured.....	708,074	499,989	902,218
Day, call and short loans to investment dealers and brokers in currencies other than Canadian, secured.....	710,640	674,527	622,619
Loans to Canadian provincial governments in Canadian currency.....	143,569	124,433	91,223

## 11.—Statement of Chartered Bank Assets and Liabilities, as at Dec. 31, 1968-70—concluded

Assets and Liabilities	1968	1969	1970
	\$'000	\$'000	\$'000
<b>Assets—concluded</b>			
Loans to Canadian municipalities and school corporations in Canadian currency, less provision for losses.....	692,245	795,399	792,015
Other loans in Canadian currency, less provision for losses.....	14,921,728	17,006,742	17,430,292
Other loans in currencies other than Canadian, less provision for losses.....	2,937,692	3,844,367	4,670,722
Bank premises at cost, less amounts written off.....	353,959	378,167	424,825
Securities of and loans to corporations controlled by the bank.....	127,850	170,739	239,555
Customers' liability under acceptances, guarantees and letters of credit, as <i>per contra</i> .....	866,401	1,263,188	1,484,065
Other assets.....	39,270	41,215	74,243
<b>Totals, Assets.....</b>	<b>36,698,817</b>	<b>42,578,338</b>	<b>47,307,010</b>
<b>Liabilities—</b>			
Deposits by Government of Canada in Canadian currency.....	669,227	1,307,851	1,257,338
Deposits by Canadian provincial governments in Canadian currency.....	391,023	209,332	214,084
Deposits by banks in Canadian currency.....	260,408	359,955	269,812
Deposits by banks in currencies other than Canadian.....	2,134,287	3,239,872	4,915,125
Personal savings deposits payable after notice, in Canada, in Canadian currency.....	13,621,848	15,029,907	16,614,955
Other deposits payable after notice, in Canadian currency.....	4,049,649	3,392,487	4,449,632
Other deposits payable on demand, in Canadian currency.....	7,387,325	7,036,909	7,082,606
Other deposits in currencies other than Canadian.....	5,243,429	8,390,296	8,617,983
Advances from Bank of Canada, secured.....	5,000	900	—
Acceptances, guarantees and letters of credit.....	866,401	1,263,188	1,484,065
Other liabilities.....	106,303	210,757	160,904
Accumulated appropriations for losses.....	561,610	594,891	604,030
Debentures issued and outstanding.....	40,000	40,000	40,000
Capital paid up.....	293,064	303,758	305,808
Rest account.....	1,062,050	1,189,126	1,277,925
Undivided profits at latest financial year-end.....	7,193	9,109	12,743
<b>Totals, Liabilities.....</b>	<b>36,698,817</b>	<b>42,578,338</b>	<b>47,307,010</b>

## 12.—Canadian Cash Reserves, 1961-70

NOTE.—Bank of Canada deposits are averages of the juridical days in the month shown; Bank of Canada notes and Canadian dollar deposits are averages of the four consecutive Wednesdays ending with the second last Wednesday in the previous month. Until June 1967 the required cash reserve ratio was 8 p.c. on both demand and notice deposits. For the next eight months the required minimum monthly average on demand deposits was increased by  $\frac{1}{4}$  of 1 p.c. per month and that on notice deposits was decreased by  $\frac{1}{4}$  of 1 p.c. Since February 1968 the required ratios have been 12 p.c. for demand deposits and 4 p.c. for notice deposits as prescribed under the Bank Act.

(Millions of dollars)

Year	Cash Reserves			Canadian Dollar Deposit Liabilities	Average Cash Reserve Ratio
	Bank of Canada Deposits	Bank of Canada Notes	Total		
1961.....	673	367	1,040	12,804	8.1
1962.....	748	376	1,124	13,812	8.1
1963.....	775	394	1,169	14,400	8.1
1964.....	857	407	1,263	15,598	8.1
1965.....	965	427	1,392	17,186	8.1
1966.....	1,057	449	1,506	18,607	8.1
1967.....	1,110	487	1,597	20,668	7.7
1968.....	965	525	1,490	23,314	6.4
1969.....	1,090	560	1,650	25,916	6.4
1970.....	1,112	587	1,699	27,066	6.3

**13.—Classification of Chartered Bank Deposit Liabilities Payable to the Public in Canada in Canadian Currency, as at Apr. 30, 1970 and 1971**

Deposit Accounts of the Public of—	1970			1971		
	Personal Savings Deposit Accounts	Other Deposit Accounts of the Public	Total Deposit Accounts of the Public	Personal Savings Deposit Accounts	Other Deposit Accounts of the Public	Total Deposit Accounts of the Public
	No.	No.	No.	No.	No.	No.
Less than \$100.....	7,235,877	2,302,996	9,538,873	7,380,380	2,482,432	9,862,812
\$100 or over but less than \$1,000.....	4,784,460	2,006,331	6,790,791	4,984,207	2,196,003	7,180,210
\$1,000 or over but less than \$10,000....	3,109,897	658,672	3,768,569	3,426,376	728,228	4,154,604
\$10,000 or over but less than \$100,000..	254,521	123,212	377,733	294,770	141,973	436,743
\$100,000 or over.....	3,004	14,924	17,928	5,032	17,471	22,503
<b>Totals, Deposits.....</b>	<b>15,387,759</b>	<b>5,106,135</b>	<b>20,493,894</b>	<b>16,090,765</b>	<b>5,566,107</b>	<b>21,656,872</b>

**14.—Classification of Chartered Bank Loans in Canadian Currency, as at Dec. 31, 1968-70**

Class of Loan	1968	1969	1970
	\$'000,000	\$'000,000	\$'000,000
<b>General Loans—</b>			
Personal.....	4,337.3	4,791.6	5,277.9
To individuals, fully secured by marketable bonds and stocks.....	596.6	574.6	563.3
Home improvement loans.....	67.8	60.3	51.9
To individuals, not elsewhere classified.....	3,672.9	4,156.7	4,662.6
<b>Farmers—</b>			
Farm Improvement Loans Act.....	313.8	321.1	303.0
Other farm loans.....	718.1	816.1	910.6
<b>Industry.....</b>	<b>3,076.8</b>	<b>3,641.3</b>	<b>3,812.2</b>
Chemical and rubber products.....	218.1	243.7	262.0
Electrical apparatus and supplies.....	260.7	329.7	270.4
Foods, beverages and tobacco.....	509.2	538.5	592.8
Forest products.....	303.9	434.1	479.7
Furniture.....	55.5	61.3	58.3
Iron and steel products.....	408.1	452.0	517.3
Mining and mine products.....	240.0	325.2	384.2
Petroleum and products.....	339.5	325.5	333.3
Textiles, leather and clothing.....	273.8	336.3	329.3
Transportation equipment.....	250.1	315.2	286.3
Other products.....	218.0	279.8	298.5
<b>Merchandisers.....</b>	<b>1,447.6</b>	<b>1,517.6</b>	<b>1,542.1</b>
<b>Construction contractors.....</b>	<b>515.1</b>	<b>567.2</b>	<b>590.5</b>
<b>Public utilities, transportation and communications.....</b>	<b>591.7</b>	<b>677.1</b>	<b>525.2</b>
<b>Other business.....</b>	<b>1,957.5</b>	<b>2,250.7</b>	<b>2,429.9</b>
<b>Religious, educational, health and welfare institutions.....</b>	<b>293.8</b>	<b>303.7</b>	<b>334.2</b>
<b>Totals, General Loans.....</b>	<b>13,251.8</b>	<b>14,886.3</b>	<b>15,725.7</b>
<b>Other Loans—</b>			
Provincial governments.....	143.6	124.4	91.2
Municipal governments and school districts.....	693.9	797.3	792.0
Stockbrokers.....	172.2	90.0	100.0
Investment dealers.....	344.1	227.8	492.7
Loans to finance the purchase of Canada Savings Bonds.....	231.3	238.4	245.6
Grain dealers and exporters.....	835.0	1,099.3	705.2
Instalment and other financial companies.....	428.9	497.9	396.7
<b>Totals, Other Loans.....</b>	<b>2,848.9</b>	<b>3,075.1</b>	<b>2,823.5</b>
<b>Grand Totals, Loans in Canadian Currency.....</b>	<b>16,100.7</b>	<b>17,961.4</b>	<b>18,549.2</b>

# 15.—Chartered Bank Revenues, Expenses, Shareholders' Equity and Accumulated Appropriations for Losses, as at Oct. 31, 1968-70

NOTE.—All banks end their financial years on Oct. 31.

Item	1968	1969	1970
	\$'000,000	\$'000,000	\$'000,000
FOR FINANCIAL YEAR ENDED OCT. 31			
<b>Revenues—</b>			
Income from loans.....	1,541.1	2,180.8	2,758.2
Income from securities <sup>1</sup> .....	396.4	450.5	499.6
Other operating income.....	271.7	311.8	333.9
<b>Totals, Revenues.....</b>	<b>2,209.2</b>	<b>2,943.1</b>	<b>3,591.7</b>
<b>Expenses—</b>			
Interest on deposits and bank debentures.....	1,031.7	1,542.4	2,043.0
Salaries, premiums, contributions and other staff benefits.....	486.8	561.6	619.8
Property expenses, including depreciation.....	131.8	151.8	176.4
Other operating expenses <sup>2</sup> .....	177.9	201.7	224.0
<b>Totals, Expenses<sup>3</sup>.....</b>	<b>1,828.2</b>	<b>2,457.5</b>	<b>3,063.3</b>
Balance of Revenue <sup>3</sup> .....	381.0	485.6	528.4
Less:			
Loss experience not included in other operating expenses.....	—10.1	25.2	52.7
Appropriations for losses, net <sup>4</sup> .....	137.6	33.6	8.9
Income taxes.....	129.3	242.2	277.9
Special contributions to pension funds.....	—	16.5	—
Leaving for dividends and shareholders' equity.....	124.2	168.1	189.0
Dividends.....	84.0	98.1	108.1
Total additions to shareholders' equity.....	52.7	114.4	122.3
From above operations.....	40.2	70.0	80.9
From issue of new shares including premiums.....	12.5	44.4	40.8
AS AT END OF FINANCIAL YEAR			
<b>Shareholders' Equity</b>			
Undivided profits.....	7.2	8.6	13.2
Rest account.....	1,062.1	1,167.7	1,279.9
Capital paid up.....	293.1	300.5	305.8
<b>Totals, Shareholders' Equity.....</b>	<b>1,362.3</b>	<b>1,476.7</b>	<b>1,599.0</b>
<b>Accumulated Appropriations for Losses.....</b>	<b>561.6</b>	<b>595.2</b>	<b>604.0</b>

<sup>1</sup> Excluding realized profits and losses on securities held in investment account which are included in the item "Loss experience not included in other operating expenses". <sup>2</sup> Includes provision for losses based on five-year average loss experience which in 1969 amounted to \$29,600,000 or 0.136 p.c. of related loans, and also includes taxes other than income taxes. <sup>3</sup> Before provision for income taxes and appropriations for losses other than those included in "Other operating expenses". <sup>4</sup> General and tax-paid appropriations for losses: net after any transfers out of accumulated appropriations for losses to undivided profits or rest account.

**Cheque Payments.**—Historical data on a monthly basis are available from 1924 on the amount of cheques charged to customer accounts in 35 major clearing house centres. The value of payments rose steadily throughout the country from 1924 to 1929. From 1929 to 1932 the value declined sharply and thereafter fluctuated within rather narrow limits until the outbreak of the Second World War. Since 1939, the total value of cheques cashed in these centres has increased steadily. The value of cheques cashed in 35 clearing centres during 1970 reached a high of \$796,636,953,000, an increase of 11.4 p.c. above the value of \$714,993,156,000 for 1969. All five geographic regions showed increases, with Ontario recording a gain of 15.9 p.c., the Prairie Provinces 9.3 p.c., the Atlantic Provinces 9.2 p.c., Quebec 7.7 p.c. and British Columbia 1.0 p.c. Payments in the two leading centres also reached all-time highs, Toronto advancing 18.5 p.c. and Montreal 6.6 p.c. over 1969.



**16.—Cheques Cashed at 35 Clearing-House Centres, 1969 and 1970**

Clearing-House Centre	1969	1970	Clearing-House Centre	1969	1970
	\$'000	\$'000		\$'000	\$'000
<b>Atlantic Provinces</b> .....	<b>17,472,452</b>	<b>19,080,872</b>	<b>Ontario—concluded</b>		
Halifax.....	8,180,766	8,757,516	Sudbury.....	1,698,729	1,937,429
Moncton.....	1,655,550	1,621,304	Thunder Bay <sup>1</sup> .....	887,569	995,954
St. John.....	2,354,765	2,484,568	Toronto.....	284,035,312	336,567,159
St. John's.....	5,281,371	6,217,484	Windsor.....	7,120,960	7,155,279
<b>Quebec</b> .....	<b>194,298,992</b>	<b>209,288,301</b>	<b>Prairie Provinces</b> .....	<b>98,711,585</b>	<b>107,908,648</b>
Montreal.....	176,195,327	187,895,615	Brandon.....	531,444	546,946
Quebec.....	16,415,280	19,607,462	Calgary.....	25,470,161	28,896,068
Sherbrooke.....	1,688,385	1,785,224	Edmonton.....	20,419,917	21,106,965
<b>Ontario</b> .....	<b>347,670,054</b>	<b>402,945,677</b>	Lethbridge.....	1,213,452	1,233,107
Brantford.....	1,569,803	1,785,387	Medicine Hat.....	487,684	472,695
Chatham.....	1,403,253	1,560,325	Moose Jaw.....	443,314	419,306
Cornwall.....	1,064,134	999,264	Prince Albert.....	488,525	489,757
Hamilton.....	14,877,229	15,484,281	Regina.....	10,469,343	12,309,253
Kingston.....	1,448,269	1,496,145	Saskatoon.....	3,283,315	3,084,537
Kitchener.....	4,107,962	4,237,706	Winnipeg.....	35,904,430	39,350,014
London.....	9,540,367	10,272,665	<b>British Columbia</b> .....	<b>56,840,073</b>	<b>57,413,455</b>
Ottawa.....	14,705,592	15,386,126	Vancouver <sup>2</sup> .....	49,414,299	50,153,771
Peterborough.....	1,230,405	1,266,631	Victoria.....	7,425,774	7,259,684
St. Catharines.....	2,421,445	2,262,528			
Sarnia.....	1,559,025	1,538,798	<b>Totals</b> .....	<b>714,993,156</b>	<b>796,636,953</b>

<sup>1</sup> The cities of Fort William and Port Arthur amalgamated Jan. 1, 1970 to form Thunder Bay; however, to preserve continuity of figures carried in this table, those for the Fort William clearing-house only are included.

<sup>2</sup> Includes New Westminster.

**Subsection 4.—Other Banking Institutions**

In addition to the savings departments of the chartered banks and of trust and loan companies, there are provincial government savings banking institutions in Ontario and Alberta, and the Montreal City and District Savings Bank in the Province of Quebec, established under federal legislation and reporting monthly to the Department of Finance. Co-operative credit unions also encourage savings among low-income classes and extend small loans to their members.

**Province of Ontario Savings Office.**—The establishment of the Province of Ontario Savings Office was authorized by the Ontario Legislature at the 1921 Session and the first branches were opened in March 1922. Interest at the rate of 5 p.c. per annum (as of Mar. 1, 1971), compounded half-yearly, is paid on accounts and deposits are repayable on demand. Total deposits as of Oct. 31, 1971 were \$187,000,000 and the number of depositors was approximately 68,000; 21 branches are in operation throughout the province.

**Province of Alberta Treasury Branches.**—Deposits are accepted at 73 branches and 76 agencies throughout the province. As at Mar. 31, 1971, deposits totalled \$244,139,357, consisting of demand savings, on which cash orders can be drawn and on which interest is paid at 3½ p.c. per annum, \$40,445,843; super savings, permitting personal withdrawals and on which interest is paid at 5 p.c. per annum, \$36,077,779; term deposits, for terms ranging from 30 days to five years, bearing interest at rates comparable with those paid on the open market, \$98,584,330; and current accounts, on which no interest is paid, \$69,031,405. Total loans as at Mar. 31, 1971 were \$133,330,050.

**The Montreal City and District Savings Bank.**—This Bank was founded in 1846 and has operated under a federal charter since 1871. At Oct. 31, 1971, it had a paid-up capital and reserve of \$21,500,000, savings deposits of \$587,707,131 and total liabilities of \$627,462,809. Assets of a like amount included \$191,158,295, consisting of federal, provincial, municipal and other securities.

**Credit Unions.**—The first credit union in Canada was founded in Lévis, Que., in 1900, its purposes being to promote thrift by encouraging saving and to provide loans to members who could not get credit elsewhere or could get it only at high interest rates. For many years growth was slow; in 1911, when the first figures were available, assets amounted to \$2,000,000 and by 1940 they were only \$20,000,000. However, since that time there has been a spectacular increase. Assets of the Quebec credit unions amounted to over \$1,000,000,000 at the end of 1964 and to over \$2,500,000,000 at the end of 1970. In other provinces, credit unions have not attained the same importance as they have in Quebec; the first credit union legislation was passed in Nova Scotia in 1932 followed by legislation in Manitoba and Saskatchewan in 1937 and in Ontario and British Columbia in 1938.

Credit unions are under provincial legislation. Almost all local offices in each province belong to central credit unions operating within the province either directly or through regional unions. There is a considerable difference between Quebec and the other provinces in the asset-holding of credit unions; Quebec unions have a large proportion of their investments in the form of mortgages and government bonds while unions in the other provinces have a greater percentage in loans. Credit unions probably play their most important role in smaller communities where they may function to a large extent as local banks. The number of chartered credit unions in Canada at the end of 1970 was 4,595 which reported a total membership of 5,203,402 and assets of \$4,592,000,000. Quebec, with 2,947,406 members and assets of \$2,543,000,000 accounted for 57 p.c. and 55 p.c., respectively, of total membership and total assets of all credit unions in Canada. Credit unions classified by bond of association on a percentage basis were; occupational 27, residential 61 and associational 12.

Canadian credit unions in the 1961-70 decade have continued the steady growth generally in evidence since credit unions were first organized in Quebec in the early part of the present century. Loans granted by credit unions increased by 17 p.c. in 1970 to reach \$1,781,000,000, being a 213-p.c. increase over the corresponding figure of \$570,000,000 in 1961. Assets at \$4,592,000,000 increased by 204 p.c. and savings at \$4,192,000,000 increased by 202 p.c. in the same comparison. Membership of 5,203,402 represented 24 p.c. of the total population, compared with 2,751,059 and 15 p.c., respectively, in 1961.

There were 20 central credit unions in 1970; these unions act as credit unions for the credit unions, mainly by accepting deposits of surplus funds from them and providing a source of funds for them to borrow when they cannot meet the demand for local loans. Most of the centrals also admit co-operatives as members. Total assets of the centrals increased by 17 p.c. to \$661,000,000 and loans to members increased 7 p.c. to \$468,000,000 over the previous year. The Canadian Co-operative Credit Society serves as a central credit union for the provincial centrals and large co-operatives all across Canada.

### 17.—Credit Unions in Canada, 1961-70

Year	Credit Unions Chartered	Credit Unions Reporting	Members <sup>1</sup>	Assets <sup>1</sup>	Loans Granted to Members
	No.	No.	No.	\$'000	\$'000
1961.....	4,682	4,348	2,740,251	1,506,167	578,663
1962.....	4,760	4,323	2,879,179	1,673,835	676,312
1963.....	4,809	4,336	3,123,735	1,920,341	771,700
1964.....	4,870	4,362	3,418,033	2,212,690	918,600
1965.....	4,939	4,364	3,677,291	2,541,791	1,078,139
1966 <sup>2</sup> .....	4,934	4,415	3,859,677	2,926,134	1,226,541
1967.....	4,911	4,404	4,280,908	3,367,732	1,323,076
1968.....	4,861	4,373	4,632,382	3,699,840	1,482,003
1969.....	4,769	4,485	5,002,722	4,064,065	1,525,655
1970.....	4,593	4,411	5,203,402	4,591,953	1,781,331

<sup>1</sup> Reporting organizations only.

<sup>2</sup> Northwest Territories included from 1966.

## 18.—Summary Statistics of Credit Unions, by Province, 1970

Province or Territory	Credit Unions Chartered	Credit Unions Reporting	Members	Assets	Shares	Deposits	Loans Granted to Members
	No.	No.	No.	\$'000	\$'000	\$'000	\$'000
Newfoundland.....	58	18	5,195	1,988	1,528	190	1,573
Prince Edward Island..	20	20	11,322	5,241	2,932	735	5,004
Nova Scotia.....	147	143	101,220	47,262	32,600	7,373	36,282
New Brunswick.....	157	156	103,709	45,458	36,159	3,440	18,345
Quebec.....	1,692	1,644	2,947,406	2,542,797	269,675	2,106,801	686,582
Ontario.....	1,547	1,062	1,025,235	870,425	515,257	271,310	550,505
Manitoba.....	221	221	187,225	182,888	5,731	156,670	98,896
Saskatchewan.....	266	264	319,656	406,839	191,291	172,994	146,876
Alberta.....	253	248	158,413	137,340	68,337	49,888	75,338
British Columbia.....	232	223	344,021	351,715	143,289	155,904	161,930
Northwest Territories..	2	..	..	..	..	..	..
<b>Totals.....</b>	<b>4,595</b>	<b>3,999</b>	<b>5,203,402</b>	<b>4,591,953</b>	<b>1,266,799</b>	<b>2,925,305</b>	<b>1,781,331</b>

## 19.—Assets, Liabilities and Members' Equity of Local Credit Unions in Canada, 1968-70

(Millions of dollars)

Item	1968	1969	1970	Item	1968	1969	1970
<b>Assets</b>				<b>Assets—concluded</b>			
Cash and Demand Deposits—				Other assets.....	26	37	42
On hand.....	64	58	66	<b>Totals, Assets.....</b>	<b>3,700</b>	<b>4,064</b>	<b>4,592</b>
In banks.....	28	34	40				
In centrals.....	293	328	415	<b>Liabilities</b>			
Other.....	25	11	22	Accounts Payable—			
<b>Investments—</b>				Interest.....	2	5	6
Term deposits.....	95	142	168	Dividends.....	2	3	2
Government of Canada.....	36	40	43	Other.....	4	5	11
Provincial governments.....	81	103	122	<b>Loans Payable—</b>			
Municipal governments.....	283	299	357	Centrals.....	112	109	84
Shares in centrals.....	60	50	49	Banks.....	11	15	5
Religious institutions.....	33	25	29	Other.....	6	11	9
Hospitals.....	17	14	17	<b>Deposits—</b>			
Other.....	60	55	77	Ordinary.....	1,716	1,905	2,269
<b>Loans—</b>				Term.....	265	424	657
Cash loans—				<b>Other liabilities.....</b>	<b>7</b>	<b>4</b>	<b>4</b>
Personal.....	1,207	1,359	1,492				
Farm.....	86	93	96	<b>Members' Equity</b>			
Co-operatives and other enterprises.....	27	28	30	Share capital.....	1,346	1,328	1,267
Other.....	53	52	56	Reserves.....	162	185	207
<b>Mortgage loans—</b>				Undivided earnings.....	67	70	71
Dwellings.....	963	1,052	1,185	<b>Totals, Liabilities and Members' Equity....</b>	<b>3,700</b>	<b>4,064</b>	<b>4,592</b>
Farm.....	86	87	82				
Co-operative and other enterprises.....	34	45	36				
Other.....	25	27	31				
<b>Fixed Assets—</b>							
Land and buildings.....	91	98	111				
Equipment and furniture....	27	27	26				

## Section 2.—Other Commercial Finance

## Subsection 1.—Trust and Mortgage Loan Companies

Trust and mortgage loan companies are registered with either the federal or provincial governments. They operate under the Loan Companies Act (RSC 1970, c. L-12) and the Trust Companies Act (RSC 1970, c. T-16, as amended) or under corresponding provincial legislation.



The first mortgage loan companies were established in Ontario in the 1840s as co-operative associations to provide mortgage finance for their members. These associations evolved under legislation which was amended to give them permanent corporate status as mortgage-lending institutions. They obtained their funds principally by selling medium- and long-term debentures to the public but also had the power to open deposit accounts. Trust companies were first incorporated in Ontario in the 1880s. Although the trust company legislation prevented them from borrowing funds, they had the power to accept funds in guaranteed trust accounts and invest them in specified types of assets. This feature of trust company legislation is now general throughout Canada. The trust companies operate as financial intermediaries in the same way as mortgage loan companies, chartered banks or savings and other financial institutions and are the only corporations in Canada with power to act as trustees for property interests and to conduct other fiduciary business. In this capacity they act as executors, trustees and administrators under wills or by appointment, as trustees under marriage or other settlements, as agents in the management of estates of the living, as guardians of minor or incapable persons, as financial agents for municipalities and companies, as transfer agents and registrars for stock and bond issues, as trustees for bond issues and, where so appointed, as authorized trustees in bankruptcies.

Trust and mortgage loan companies were established and grew rapidly under provincial legislation in the late nineteenth and early twentieth centuries. Some companies were chartered by special Acts of Parliament but it was not until 1914 that federal legislation was passed and the Federal Government began to regulate trust and loan companies registered under its Acts. In 1970 there were nine federal trust companies and 13 federal loan companies. The Superintendent of Insurance examines these companies and also, by arrangement with the provinces, trust and loan companies incorporated in Nova Scotia and trust companies incorporated in New Brunswick and Manitoba. Companies must be licensed by each province in which they wish to operate.

Although there are many differences among the various federal and provincial Acts, the broad lines of the legislation are common. In their intermediary business the companies have the powers mentioned above to borrow or, in the case of trust companies, accept funds in guaranteed accounts subject to maximum permitted ratios of these funds to shareholders' equity. The funds may be invested in specified assets which include first mortgages on real property, government securities, and the bonds and equity of corporations having established earnings records, and the companies may grant loans on the security of such bonds and stocks and unsecured personal loans. Trust and loan companies are not required to hold specified cash reserves, as are the chartered and savings banks, but there are broadly defined "liquid asset" requirements in a number of the Acts.

The trust and mortgage loan companies have been substantial members of the Canadian financial system since their early years. In the 1920s they held about one half of the private mortgage business in Canada but their growth rate fell off sharply because of the impact of the depression of the 1930s and World War II on the mortgage business. In the years since the War the re-emergence of strong demands for mortgage financing and the willingness of many trust and loan companies to compete aggressively for funds have led to sustained rapid expansion.

According to Statistics Canada figures, mortgage loan companies had assets before investment in subsidiaries of \$3,428,000,000 at the end of 1970 compared with \$3,007,000,000 a year earlier. Their holdings of mortgages amounted to \$2,868,000,000, or 84 p.c. of total assets. To finance their investments, these companies had borrowed \$2,307,000,000 or 67 p.c. of their total funds by the sale of debentures and \$483,000,000 from demand deposits.

At the end of 1970, company and guaranteed funds of trust companies in the Statistics Canada survey were \$6,514,000,000 compared with \$5,689,000,000 a year earlier, an increase of 14 p.c. Trust companies, while not specializing in mortgage financing to the same extent as loan companies, in recent years have been putting a high proportion of their funds into these investments with the result that mortgages were 59 p.c. of their assets at the end of 1970. The trust companies had \$4,442,000,000 in term deposits outstanding and \$1,472,000,000 in demand deposits at the end of 1970, accounting for 91 p.c. of total funds.



About one third of the demand or savings deposits were in chequable accounts. There is considerable variety among the trust companies and a few have developed a substantial short-term business, raising funds by issuing certificates for terms as short as 30 days and also operating as lenders in the money market. Nevertheless, it remains true that the main business of the trust companies in their intermediary role is to channel savings into mortgages and other long-term investments. In addition, trust companies, as of Dec. 31, 1970, had \$23,488,000,000 under administration in estate, trust and agency accounts.

More complete and up-to-date financial information may be found in quarterly balance sheet statements published by Statistics Canada and the Bank of Canada, the reports of the Superintendent of Insurance on Loan and Trust Companies and the reports of provincial supervisory authorities.

## 20. —Assets, Liabilities and Shareholders' Equity of Trust Companies (Company and Guaranteed Funds), 1966-70

(Millions of dollars)

Item	1966	1967	1968	1969	1970
<b>Assets</b>					
Demand deposits, incl. cash and foreign currency.....	88	93	119	231	327
Investments—					
Investments in Canadian Securities—					
Federal.....	438	455	517	594	539
Provincial.....	229	285	285	286	315
Municipal.....	127	111	120	95	100
Sales finance and commercial paper.....	195	149	229	296	380
Term deposits with chartered banks.....	72	170	190	93	191
Term deposits with trust and mortgage companies.....	18	14	28	12	15
Corporation bonds and debentures.....	240	291	320	329	335
Collateral loans.....	120	115	142	163	169
Mortgages—					
Loans under NHA.....	493	506	546	594	723
Conventional mortgage loans.....	1,677	1,908	2,176	2,670	3,106
Investments in Canadian preferred and common shares.....	83	85	97	107	108
Investments in foreign securities.....	14	23	22	63	29
Investments in subsidiary and affiliated companies.....	30	32	56	82	50
Interest, rents and other receivables.....	24	38	42	55	63
Real estate and equipment.....	46	52	53	66	57
Other assets.....	29	26	30	35	57
<b>Totals, Assets.....</b>	<b>3,923</b>	<b>4,352</b>	<b>4,972</b>	<b>5,771</b>	<b>6,564</b>
<b>Liabilities</b>					
Demand and Savings Deposits—					
Chequing.....	557	572	575	438	404
Non-chequing.....	539	591	650	901	1,068
Term Deposits—					
Under one year.....	612	623	798	1,058	960
One to six years.....	1,785	2,085	2,380	2,772	3,453
Over six years.....	30	32	30	20	29
Bank loans.....	6	7	5	3	8
Short-term loans and notes payable.....	15	19	20	20	16
Debts owing parent and affiliated companies.....	8	10	38	41	59
Interest, dividends, taxes and other payables.....	36	62	87	101	128
<b>Shareholders' Equity</b>					
Capital paid up.....	114	119	115	122	126
Investment reserves.....	68	76	85	90	94
Reserve fund.....	141	148	177	192	202
Retained earnings.....	12	9	12	12	17
<b>Totals, Liabilities and Shareholders' Equity.....</b>	<b>3,923</b>	<b>4,353</b>	<b>4,972</b>	<b>5,771</b>	<b>6,564</b>

**21.—Revenues and Expenses of Trust Companies, 1968-70**

(Millions of dollars)

Item	1968	1969	1970
<b>Revenues</b>			
Interest earned.....	302	337	480
Dividends.....	5	6	6
Fees and commissions.....	92	114	120
Other revenue.....	8	17	9
<b>Totals, Revenues.....</b>	<b>407</b>	<b>474</b>	<b>615</b>
<b>Expenses</b>			
Interest.....	234	270	395
Depreciation.....	3	4	4
Amortization.....	1	1	—
Income taxes.....	16	18	22
Other expenses.....	128	152	166
<b>Totals, Expenses.....</b>	<b>382</b>	<b>445</b>	<b>587</b>
Net profit.....	25	29	28

**22.—Assets, Liabilities and Shareholders' Equity of Mortgage Loan Companies, 1966-70**

(Millions of dollars)

Item	1966	1967	1968	1969	1970
<b>Assets</b>					
Demand deposits, incl. cash and foreign currency.....	32	38	61	34	45
Investments—					
Investments in Canadian Securities—					
Federal.....	125	133	122	135	121
Provincial.....	44	49	47	52	48
Municipal.....	10	10	8	8	8
Sales finance and commercial paper.....	1	11	12	7	48
Term deposits with chartered banks.....	5	17	30	8	27
Term deposits with trust and mortgage companies.....	5	5	5	5	3
Corporation bonds and debentures.....	24	28	31	33	34
Collateral loans.....	22	21	25	28	32
Mortgages—					
Loans under NHA.....	128	130	152	210	330
Conventional mortgage loans.....	1,820	1,943	2,083	2,298	2,538
Investments in Canadian preferred and common shares....	58	68	71	73	70
Investments in foreign securities.....	4	5	5	8	9
Investments in subsidiary and affiliated companies.....	195	208	214	285	350
Interest, rents and other receivables.....	22	24	26	27	32
Real estate and equipment.....	59	61	60	52	53
Other assets.....	16	21	24	29	30
<b>Totals, Assets.....</b>	<b>2,570</b>	<b>2,772</b>	<b>2,976</b>	<b>3,292</b>	<b>3,778</b>

**22.—Assets, Liabilities and Shareholders' Equity of Mortgage Loan Companies,  
1966-70—concluded**

Item	1966	1967	1968	1969	1970
<b>Liabilities</b>					
Demand and Savings Deposits—					
Chequing.....	165	152	157	162	150
Non-chequing.....	219	246	293	279	333
Term Deposits—					
Under one year.....	27	43	44	46	34
One to six years.....	834	959	1,092	1,295	1,644
Over six years.....	625	649	647	615	629
Bank loans.....	69	64	42	72	30
Short-term loans and notes payable.....	95	79	80	111	181
Debts owing parent and affiliated companies.....	176	179	180	181	174
Interest, dividends, taxes, and other payables.....	59	65	87	105	125
<b>Shareholders' Equity</b>					
Capital paid up.....	123	133	136	216	244
Investment reserves.....	30	37	42	42	45
Reserve fund.....	95	112	122	117	127
Retained earnings.....	53	54	54	51	62
<b>Totals, Liabilities and Shareholders' Equity</b> .....	<b>2,570</b>	<b>2,772</b>	<b>2,976</b>	<b>3,292</b>	<b>3,778</b>

**23.—Revenues and Expenses of Mortgage Loan Companies, 1968-70**

(Millions of dollars)

Item	1968	1969	1970
<b>Revenues</b>			
Interest earned.....	189	216	260
Dividends.....	10	9	25
Fees and commissions.....	1	1	—
Other revenues.....	26	31	23
<b>Totals, Revenues</b> .....	<b>226</b>	<b>257</b>	<b>308</b>
<b>Expenses</b>			
Interest.....	131	146	186
Depreciation.....	2	2	2
Amortization.....	1	1	1
Income taxes.....	16	19	17
Other expenses.....	48	65	59
<b>Totals, Expenses</b> .....	<b>198</b>	<b>233</b>	<b>265</b>
Net profit.....	28	24	43

**Subsection 2.—Licensed Small Loans Companies and Licensed Money-Lenders\***

Small loans companies and money-lenders are subject to the Small Loans Act (RSC 1970, c. S-11). This Act, first passed in 1939, sets maximum charges on personal cash loans not in excess of \$1,500 and is administered by the Department of Insurance. Lenders not licensed under the Act may not charge more than 1 p.c. per month. Those wishing to make small loans at higher rates must be licensed each year by the Minister of Finance under the Small Loans Act. The Act allows maximum rates, including charges of every kind, of 2 p.c. per month on unpaid balances not exceeding \$300, 1 p.c. per month on the portion of unpaid balances exceeding \$300 but not exceeding \$1,000 and one half of 1 p.c. on any remainder of the balance exceeding \$1,000. Loans in excess of \$1,500 are not regulated and lenders operating entirely above this limit and the larger loans of licensed lenders are thus exempt from the Act. Nor does the Act regulate charges for the instalment financing of sales. Prior to Jan. 1, 1957, the Act applied only to loans of \$500 or less and the maximum rate was 2 p.c. per month.

At the end of 1970, there were five small loans companies and 45 money-lenders licensed under the Act. Small loans companies are incorporated by special Acts of the Parliament of Canada, the first of them commencing business in 1928; the money-lenders include provincially incorporated companies and one partnership. Many of the small loans companies and money-lenders are affiliated with other financial institutions, principally Canadian sales finance companies and United States finance or loan companies, and these subsidiary companies account for a high proportion of the total business of licensed lenders. The affiliations with sales finance companies reflect the close relationship between instalment financing and the consumer loan business. Statistics Canada publishes quarterly balance sheets for sales finance and consumer loan companies as a whole and does not attempt to distinguish the two groups within the industry.†

The subsidiary small loans companies and money-lenders obtain most of their funds through their parent companies. A few of the larger companies have supplemented their bank loans by selling short-term paper in the market but the amount has been small compared with the short-term market borrowing of the sales finance companies. The smaller independent companies rely mainly on their shareholders and on borrowing from the chartered banks.

The annual figures of assets and liabilities given in Table 24 for 1967-70 are from the Department of Insurance report.†

\* Prepared by the Superintendent of Insurance for Canada.

† See Statistics Canada publication, *Financial Institutions* (Catalogue No. 61-006). More complete data on the business of licensed lenders are given in the *Report of the Superintendent of Insurance for Canada on Small Loans Companies and Money-Lenders* for the year ended Dec. 31, 1970 (Catalogue No. In 3-4/1970).

**24.—Assets and Liabilities of Small Loans Companies and Money-Lenders, 1967-70**

Assets and Liabilities	1967	1968	1969	1970
	\$	\$	\$	\$
<b>Assets</b>	<b>1,042,901,678</b>	<b>1,132,835,283</b>	<b>1,484,703,850</b>	<b>1,452,990,516</b>
Small loans balances	635,822,357	619,217,645	595,658,632	524,817,458
Balances, large loans and other contracts	372,603,457	470,874,565	847,609,211	871,482,475
Cash	11,604,924	11,711,354	9,793,445	11,539,055
Other	22,870,940	31,031,719	31,642,562	45,151,528
<b>Liabilities</b>	<b>1,042,901,678</b>	<b>1,132,835,283</b>	<b>1,484,703,850</b>	<b>1,452,990,516</b>
Borrowed money	823,137,246	883,773,637	1,122,404,780	1,040,475,416
Reserves for losses	25,893,727	27,925,147	34,611,704	36,129,856
Paid-up capital	50,795,964	47,757,361	46,920,146	46,878,633
Surplus paid in by shareholders	8,702,743	6,929,393	14,085,149	26,835,167
Earned surplus	54,631,858	73,354,582	93,483,821	114,541,497
Other	79,740,140	93,095,263	173,198,250	188,129,947



There was a marked decrease in 1970 compared with 1969 in the number and amount of small loans made by the combined companies. Small loans made to the public during the year numbered 1,026,115 as against 1,351,092 in 1969, a drop of about 24.1 p.c.; the amount of such loans decreased from \$823,277,807 to \$637,093,691, a drop of about 22.6 p.c. The average small loan made was \$621 in 1970 and \$609 in 1969. At the end of the year, small loans outstanding numbered 1,039,970 for an amount of \$524,817,187, or an average of \$505 per loan; comparable figures for 1969 were 1,155,108, \$595,658,632 and \$516, respectively.

Gross profits of small loans companies and money-lenders before income taxes and before taking into account any increase or decrease in reserves for bad debts increased from \$51,348,419 in 1969 (\$8,427,200 being the profit on small loans and \$42,921,219 the profit on business other than small loans) to \$55,506,108 in 1970 (\$2,147,980 being the profit on small loans and \$53,358,128 the profit on other business).

### Subsection 3.—Foreign Exchange

The dollar, established officially as the currency of the united provinces of Canada on Jan. 1, 1858, and extended to cover the New Dominion by the Uniform Currency Act of 1870, was defined as 15/73 of the British gold sovereign.\* That is, the par rate of exchange between the dollar and the pound sterling was fixed at \$4.866, making the Canadian currency the equivalent of the United States dollar at parity. With minor variations between the import and export gold points representing the cost of shipping gold in either direction, the value of the pound sterling in Canada remained at this level until the outbreak of World War I. The United States dollar, on the other hand, was at a discount in terms of Canadian funds for the first eleven years after Confederation since it was not redeemable in gold from February 1862 to January 1879. On the basis of gold equivalents, it would appear that the greatest monthly average discount on the United States dollar after Confederation was approximately 31 p.c., reached in August 1868. From 1879 to 1914 the dollars of the two countries remained at par, varying only within the gold points or under \$2 per thousand.

On the outbreak of World War I, Canada and Britain suspended the gold standard. For some weeks both the pound and the Canadian dollar rose to a premium in New York. Subsequently both fell back with the pound going to a slight discount. In January 1916 the pound was officially pegged at \$4.76 in American funds. This level was maintained with the help of funds realized by sales of United States securities owned by residents of Britain, by borrowing in the United States and, after the American entry into the War, by the United States Government financing Allied purchases in that country.

From 1915 to the end of 1917, fluctuations in the rate of exchange between the Canadian and United States dollars did not exceed 2 p.c. on either side of parity; the pound was stable in terms of United States dollars during this period. In 1918, the Canadian dollar began to weaken. After the pound was unpegged in 1919, the Canadian dollar declined further and in 1920 it fell to 82 cents in New York with sterling going as low as \$3.18.

By the latter half of 1922 the Canadian dollar had returned practically to par in New York. Despite some further weakness in sterling, the dollar remained close to that level during the next two years, averaging 98.04 and 98.73 cents in terms of the United States dollar in 1923 and 1924, respectively, and fluctuating between a discount of about 3.6 cents and a premium of approximately 0.4 cents. After Britain resumed gold payments in April 1925, the range of fluctuation of the Canadian dollar narrowed further. From Canada's return to the gold standard in the period July 1, 1926 to January 1929, the exchange rate remained within the gold points. The Canadian dollar then went to a slight discount in New York. With the exception of the period July to November 1930, when it

\* The gold sovereign remained the standard for the Canadian dollar until 1910 when the currency was defined in terms of fine gold, making it the exact gold equivalent of the United States dollar. Both British and United States gold coins were, however, legal tender in Canada for this whole period.

went to a small premium in New York, the dollar remained below parity until Britain abandoned the gold standard in September 1931. The position of the Canadian dollar with respect to the gold standard at this time has never been entirely clear. The value of the dollar fairly consistently fell below the gold export point in the foreign exchange market, yet the dollar was never officially declared to be "off" gold until September 1931. The level of between one and two percentage points below parity during much of this period was certainly within narrower limits than it would have been if the Canadian dollar had simply been allowed to move freely in response to market forces, but official policy in the matter was never disclosed. In September 1931, when the gold standard was officially abandoned, the pound sterling depreciated sharply and the Canadian dollar followed, reaching lows\* in New York of 80.5 cents in December 1931 and 82.6 cents in April 1933.

Following the prohibition of gold exports in the latter month by the United States, the pound and the Canadian dollar strengthened rapidly in terms of American funds. By November 1933, both currencies had reached a premium in New York. Meanwhile, in a series of steps beginning with permitting the export of newly mined gold in August 1933, the United States moved toward resumption of the gold standard. As of Feb. 1, 1934, the United States Treasury undertook to buy all gold offered at \$35 per ounce. After that the exchange rate between the Canadian and United States dollars stabilized. Until the outbreak of war in 1939, much of the trading was conducted within one cent of parity although the Canadian dollar in New York did go as high as 103.6 cents (September 1934) and as low as 98.0 cents (September 1938).\*

On the outbreak of World War II in September 1939, Britain and other sterling countries introduced foreign exchange control involving fixed buying and selling rates of \$4.02½ and \$4.03½, respectively, in terms of the United States dollar. The Canadian dollar in New York declined until Sept. 16, 1939, when the Government instituted foreign exchange control† in Canada and established fixed buying and selling rates of \$1.10 to \$1.11 for the U.S. dollar and \$4.43 to \$4.47 for sterling. As compared with previous months, the depreciation of the Canadian dollar in terms of United States funds was approximately half as great as that of the pound sterling.

Apart from a minor adjustment on Oct. 15, 1945, when selling rates for U.S. dollars and sterling were lowered to \$1.10½ and \$4.45, respectively, the official rates for the Canadian dollar remained unchanged until July 5, 1946. At that time the rate on the U.S. dollar was restored to par, with buying and selling rates for that currency of \$1.00 to \$1.00½ and for sterling \$4.02 to \$4.04. These rates continued in effect until Sept. 19, 1949 when, following a 30.5-p.c. reduction by Britain in the value of sterling to \$2.80 U.S. (an action which was paralleled in varying degrees by numerous other currencies), Canada returned to the former official rates of \$1.10 and \$1.10½ for United States funds. Sterling was quoted at \$3.07½ and \$3.08½ on the basis of the New York cross rate.

On Sept. 30, 1950, the Minister of Finance announced that official fixed foreign exchange rates which had been in effect at varying levels since 1939 would be withdrawn effective Oct. 2, and that the rate would henceforth be determined in the market for foreign exchange. This policy was carried out within the framework of exchange control until Dec. 14, 1951, at which time the Foreign Exchange Control regulations were revoked by the Governor in Council, terminating the period of exchange control that had prevailed in Canada since 1939. The Foreign Exchange Control Act was repealed in 1952. On May 2, 1962, the Minister of Finance announced that the Canadian dollar was being stabilized at a fixed par value of 92½ cents in terms of United States currency. This action was taken with the concurrence of the International Monetary Fund and, in accordance with the Articles of Agreement of that organization, the Government of Canada undertook to maintain the Canadian exchange rate within a margin of 1 p.c. on either side of the established par value.

\* Noon quotations. Daily highs and lows may have exceeded these rates.

† The operations of the Foreign Exchange Control Board from the time of its establishment to the termination of exchange control in December 1951 are reviewed in the 1941 to 1952-53 editions of the Year Book.

On May 31, 1970, the Government of Canada announced a decision not to maintain the exchange rate of the Canadian dollar within the 1-p.c. parity band prescribed by the IMF for the time being. The movements of the U.S. dollar in Canadian funds from January 1961 to December 1971 are shown in Table 25.

### 25.—Price of the United States Dollar in Canada, by Month, 1962-71

NOTE.—Rates published by Bank of Canada. Noon average market rate for business days in period.  
(Canadian cents per U.S. dollar)

Month	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971
January.....	104.50	107.71	108.02	107.38	107.46	107.95	108.47	107.27	107.28	101.16
February.....	104.88	107.76	108.00	107.58	107.63	108.06	108.73	107.44	107.31	100.75
March.....	104.94	107.80	108.05	108.11	107.62	108.20	108.49	107.67	107.27	100.63
April.....	104.98	107.68	108.09	107.92	107.70	108.24	108.01	107.62	107.28	100.76
May.....	108.23	107.72	108.09	107.95	107.67	108.21	107.79	107.70	107.28	100.87
June.....	108.79	107.82	108.09	108.23	107.65	108.04	107.68	107.95	103.84	102.12
July.....	107.89	107.97	108.13	108.35	107.48	107.78	107.36	108.06	103.20	102.11
August.....	107.76	108.29	107.87	107.84	107.51	107.58	107.26	107.81	102.14	101.33
September.....	107.68	107.98	107.61	107.64	107.62	107.53	107.30	107.82	101.59	101.29
October.....	107.60	107.79	107.53	107.51	107.93	107.33	107.27	107.79	102.14	100.44
November.....	107.68	107.76	107.39	107.49	108.20	107.51	107.30	107.58	102.00	100.37
December.....	107.60	107.93	107.46	107.58	108.31	108.02	107.31	107.42	101.74	99.92
<b>Annual Average.....</b>	<b>106.89</b>	<b>107.85</b>	<b>107.86</b>	<b>107.80</b>	<b>107.73</b>	<b>107.87</b>	<b>107.75</b>	<b>107.68</b>	<b>104.40</b>	<b>100.98</b>

### 26.—Canada's Official International Reserves and Exchange Fund Account Forward Commitments, 1961-70

(Millions of U.S. dollars)

End of—	Convertible Foreign Currencies <sup>1</sup>		Special Drawing Rights <sup>3</sup>	Gold	Reserve Position in the IMF	Total	Forward Contracts in U.S. Dollars <sup>4</sup>
	U.S. Dollars	Other <sup>2</sup>					
1961.....	1,123.0	10.7	—	946.2	212.1	2,292.0	-10.0
1962.....	1,842.8	9.2	—	708.5	—	2,560.5	—
1963.....	1,786.6	9.5	—	817.2	—	2,613.3	54.0
1964.....	1,654.5	11.8	—	1,025.7	197.5	2,889.5	10.0
1965.....	1,519.9	12.8	—	1,150.8	353.4	3,036.9	-4.4
1966.....	1,195.4	12.4	—	1,045.6	448.5	2,701.9	-5.4
1967.....	1,255.2	13.4	—	1,014.9	433.4	2,716.9	16.8
1968.....	1,964.9	11.6	—	863.1	206.2	3,045.8	27.8
1969.....	1,743.6	12.3	—	872.3	478.1	3,106.3	7.8
1970.....	3,022.1	14.5	182.1	790.7	669.6	4,679.0	-6.4

<sup>1</sup> Convertible foreign currency holdings of the Exchange Fund Account, the Receiver General for Canada and the Bank of Canada. <sup>2</sup> Valued at official parity rates in terms of U.S. dollars. <sup>3</sup> Holdings of Special Drawing Rights (SDRs) reflect allocations to Canada of SDRs and transactions involving Canada under the arrangements by the International Monetary Fund providing for the use of SDRs by member countries. <sup>4</sup> Includes all overnight and forward transactions of the Exchange Fund Account and the Bank of Canada that affect the total of official reserves. A positive figure indicates a net commitment to take delivery of foreign exchange in the future and a negative figure indicates a commitment to deliver foreign exchange in the future.

### Subsection 4.—The Bond Market\*

**Sales of Canadian Bonds.**—A net total of \$5,846,000,000 was raised in the bond market by Canadian federal and junior governments and corporate borrowers in 1970. This amount was about \$2,257,000,000 more than that raised in 1969, and major bond borrowers were the Government of Canada and provincial governments, recording net new issues of \$1,844,000,000 and \$1,987,000,000, respectively.

The \$1,987,000,000 of new issues of provincial governments included \$863,000,000 purchased by the Canada Pension Plan Investment Fund and about \$171,000,000 through the Quebec Pension Plan. Net new market issues of municipal government bonds amounted

\* A study of developments in Canadian bond markets dealing with behavioural aspects, 1962-69, was published in Statistics Canada publication *Financial flow accounts, System of National Accounts, Fourth Quarter, 1969* (Catalogue No. 13-002).



to \$345,000,000. Corporations resorted to bond financing to the extent of \$1,540,000,000 and other institutions had net new issues in 1970 of \$124,000,000.

Bond yield averages decreased considerably in 1970. Government of Canada bonds for terms of ten years and over yielded 6.99 p.c. at Dec. 31, 1970, compared to 8.33 p.c. a year earlier. Comparable figures for provincials were 8.25 and 9.19 p.c., and for municipals, 8.74 and 9.68 p.c., respectively.

There was an increase of \$51,000,000 in finance and loan company paper, and of \$221,000,000 in banker's acceptances in 1970. Yields on 90-day finance company paper decreased considerably to 5.58 p.c. at the end of 1970 from 9.17 p.c. a year earlier.

**Bonds Outstanding.**—Total government and business bonds outstanding at the end of 1970 amounted to \$70,509,000,000, an increase of 9 p.c. over 1969 and of 45 p.c. since 1965. In the 1965-70 period, the largest increase was one of 81 p.c. in the bonded debt of provincial governments. This increase included issues held in the Canada Pension Plan Investment Fund and the Quebec Deposit and Investment Fund since the inception of the plans in 1966. Corporate bonds outstanding increased by 50 p.c. and municipal government bonds by 29 p.c. between 1965 and 1970.

## 27.—Canadian Bonds Outstanding as at Dec. 31, 1965-70, and Annual Changes in Bonds and in Short-Term Paper Outstanding

NOTE.—Federal, provincial and municipal bonds include direct and guaranteed issues; institutional bonds exclude bonds payable in Canadian dollars of the International Bank for Reconstruction and Development and certain foreign governments, amounting to \$84,060,000, \$102,000,000, \$119,000,000, \$133,000,000, \$116,000,000 and \$106,000,000 in the years 1965-70, respectively. SOURCE: Bank of Canada, *Statistical Summary August 1971*, p. 620; *Review January 1972*, Table A6.

Item	1965	1966	1967	1968	1969	1970
<b>BONDS OUTSTANDING DEC. 31</b>						
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000
Government of Canada.....	20,681	21,111	22,011	23,556	23,902	25,746
Provincial government.....	11,946	13,534	15,633	17,615	19,634	21,621
Municipal government.....	5,368	5,718	6,127	6,423	6,601	6,946
Corporate.....	10,406	11,415	12,304	13,088	14,054	15,494
Institutional.....	295	309	338	398	478	602
<b>Totals</b> .....	<b>48,696</b>	<b>52,087</b>	<b>56,413</b>	<b>61,080</b>	<b>64,669</b>	<b>70,509</b>
<b>CHANGES IN BONDS OUTSTANDING AND IN SHORT-TERM PAPER <sup>1</sup></b>						
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000
<b>Bonds—</b>						
Government of Canada.....	-52	430	900	1,545	346	1,844
Treasury bills.....	10	80	285	370	70	370
Marketable bonds.....	-395	57	310	1,073	-165	826
Non-marketable bonds.....	353	353	305	102	441	648
Provincial government.....	764	1,588	2,099	1,982	2,019	1,987
Municipal government.....	247	350	409	296	178	345
Corporate.....	1,343	1,009	889	784	966	1,540
Institutional.....	17	14	29	60	80	124
<b>Totals, Bonds</b> .....	<b>2,319</b>	<b>3,391</b>	<b>4,326</b>	<b>4,687</b>	<b>3,589</b>	<b>5,840</b>
<b>Short-Term Paper—</b>						
Corporate—						
Finance and other commercial paper.....	-279	143	100	471	535	51
Canadian dollar banker's acceptances.....	139	20	-24	-30	58	221
<b>Totals, Short-Term Paper</b> ...	<b>-140</b>	<b>163</b>	<b>76</b>	<b>441</b>	<b>593</b>	<b>272</b>
<b>Totals, Bonds and Short-Term Paper</b> .....	<b>2,179</b>	<b>3,554</b>	<b>4,402</b>	<b>5,108</b>	<b>4,182</b>	<b>6,112</b>

<sup>1</sup> Changes in bonds outstanding do not agree with Bank of Canada figures on net new issues due to takeovers, bankruptcies, etc.



**Distribution of Bond Holdings.**—Table 28 shows the estimated distribution as at Dec. 31, 1970 of government and corporate bonds among the major purchasers of securities. Governments and the financial institutions specified in the table held a little over one half of the total; of the remainder, non-residents held 21 p.c. and all other residents held 27 p.c. Of the 27 p.c., however, 10 p.c. was made up of holdings by persons of Canada Savings Bonds. The largest identified holders of bonds were chartered banks with 12 p.c. of the total, trustee pension plans with 8 p.c. and life insurance companies with 7 p.c.

### 28.—Estimated Distribution of Bond Holdings, as at Dec. 31, 1970

NOTE.—Federal, provincial and municipal bonds include direct and guaranteed issues; "other" bonds include bonds of religious and other institutions, and a small amount of foreign bonds payable in Canadian dollars; short-term commercial borrowing is excluded. SOURCE: Bank of Canada, *Review*, January 1971.

Holder	Government of Canada Bonds	Provincial Government Bonds	Municipal Government Bonds	Corporate and Other Bonds	Total	P.C. of Total
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000	
Bank of Canada.....	4,295	—	—	416	4,711	6.7
Chartered banks.....	6,603	449	357	843	8,252	11.7
Government of Canada.....	1,005	3,502 <sup>1</sup>	—	—	4,507	6.4
Provincial governments.....	490	2,149	288	540	3,467	4.9
Municipal governments.....	60	140	625	60	885	1.3
Life insurance companies.....	480	1,120	660	2,967	5,227	7.4
Other insurance companies.....	625	677	243	616	2,161	3.0
Quebec savings banks.....	34	51	31	45	161	0.2
Trust and mortgage loan companies.....	660	431	108	369	1,568	2.2
Trustee pension plans.....	340	2,968	761	1,555	5,624	8.0
All other resident.....	10,411 <sup>2</sup>	3,786	2,210	2,685	19,092	27.0
Non-resident.....	743	6,348	1,663	6,206	14,960	21.2
<b>All Holders.....</b>	<b>25,746</b>	<b>21,621</b>	<b>6,946</b>	<b>16,302</b>	<b>70,615</b>	<b>100.0</b>

<sup>1</sup> Held by the Canada Pension Plan Investment Fund.

<sup>2</sup> Includes Canada Savings Bonds of \$7,397,000,000.

## PART II.—INSURANCE\*

### Section 1.—Life Insurance

Life insurance in force in Canada with companies registered by the Federal Government (exclusive of fraternal benefit societies) amounted to \$111,116,000,000 at the end of 1970, an increase of \$8,331,000,000 during the year. The ratio of gain in business in force, expressed as a percentage of the amount in force at the beginning of the same year, was 8.1 p.c. in 1970.

Year	In Force at Beginning of Year	Increase in Force for the Year	Per- centage Gain
	\$'000,000	\$'000,000	
1930.....	6,157	335	5.4
1935.....	6,221	38	0.6
1940.....	6,776	200	2.9
1945.....	9,140	612	6.7
1950.....	14,409	1,337	9.3
1955.....	23,135	2,317	10.0
1960.....	40,874	3,775	9.2
1961.....	44,649	3,635	8.1
1962.....	48,284	3,949	8.2
1963.....	52,233	4,571	8.8
1964.....	56,804	5,868	10.3
1965.....	62,672	6,984	11.1
1966.....	69,656	7,168	10.3
1967.....	76,824	7,981	10.4
1968.....	84,805	8,408	9.9
1969.....	93,213	9,572	10.3
1970.....	102,785	8,331	8.1

\* Material in this Part, except as otherwise indicated, was prepared under the direction of the Superintendent of Insurance for Canada, Ottawa. More detailed data are available in the annual reports of the Department of Insurance.

### Subsection 1.—Summary of Life Insurance in Canada

Table 1 summarizes insurance premiums, claims, amounts of new policies effected and amounts of insurance in force on Dec. 31, 1970. These data are presented according to supervising government authorities for the companies and societies concerned, and according to nationality of company or society.

#### 1.—Summary of Life Insurance in Canada according to Supervising Government Authority and by Nationality of Company or Society, 1970

Year, Supervising Authority and Nationality of Company or Society	Insurance Premiums	Claims <sup>1</sup>	New Policies Effected	Insurance in Force, Dec. 31
	\$'000	\$'000	\$'000	\$'000
<b>Supervising Authority</b>				
<b>Federally Registered</b> .....	<b>1,380,451</b>	<b>522,798</b>	<b>13,287,097</b>	<b>113,041,727</b>
Companies.....	1,348,857	512,592	12,915,444	111,116,437
Societies.....	31,594	10,206	371,653	1,925,290
<b>Provincially Licensed Only</b> .....	<b>98,917</b>	<b>40,010</b>	<b>1,900,520</b>	<b>8,038,848</b>
Within Province of Incorporation—				
Companies.....	78,735	29,584	1,128,933	6,018,047
Societies.....	4,821	3,492	649,228	1,084,852
Outside Province of Incorporation—				
Companies.....	13,764	6,004	107,279	852,771
Societies.....	1,597	930	15,080	83,178
<b>Totals</b> .....	<b>1,479,368</b>	<b>562,808</b>	<b>15,187,617</b>	<b>121,080,575</b>
<b>Nationality of Company or Society</b>				
Canadian Companies—				
Federally registered.....	916,145	346,562	8,270,157	76,774,968
Provincially licensed only.....	92,499	35,588	1,236,212	6,870,818
Canadian Societies—				
Federally registered.....	24,525	7,632	333,495	1,594,154
Provincially licensed only.....	6,418	4,422	664,308	1,168,030
British Companies—				
Federally registered.....	78,645	18,121	969,095	5,726,667
Foreign Companies—				
Federally registered.....	354,067	147,909	3,676,193	28,614,802
Foreign Societies—				
Federally registered.....	7,070	2,574	38,157	331,136

<sup>1</sup> Death, disability and maturity under insurance contracts.

### Subsection 2.—Operational Statistics for Life Insurance Transacted in Canada by Companies under Federal Registration

The amount of life insurance in force in Canada has shown an almost continuous advance year by year since the beginning of the record in 1869. The amount per capita of the estimated population has more than doubled since 1960.

The operations analysed in the tables of this Subsection, with the exception of Table 6, include only those of companies under federal registration and are exclusive of fraternal organizations and provincial licensees. However, companies under federal registration account for over 93 p.c. of the life insurance in force in Canada.

## 2.—Life Insurance Effectuated and in Force in Canada by Companies under Federal Registration, Decennially 1880-1960 and Annually 1961-70

NOTE.—Figures for 1889-1900 are given in the 1938 Year Book, p. 958; for 1901-39 in the 1942 edition, p. 855; for 1940-54 in the 1957-58 edition, p. 1168; and for 1955-59 in the 1967 edition, p. 1147. Statistics of fraternal society insurance, excluded here, are given at pp. 1262-1264.

Year	New Insurance Effectuated during Year	Insurance in Force Dec. 31				Insurance in Force per Capita <sup>1</sup>
		Canadian Companies	British Companies	Foreign Companies	Total	
	\$	\$	\$	\$	\$	\$
1880.....	13,906,887	37,838,518	19,789,863	33,643,745	91,272,126	21
1890.....	39,802,956	135,218,990	31,613,730	81,591,847	248,424,567	52
1900.....	67,729,115	267,151,086	39,485,344	124,433,416	431,069,846	81
1910.....	150,785,305	565,667,110	47,816,775	242,629,174	856,113,059	123
1920.....	630,110,900	1,664,348,605	76,883,090	915,793,798	2,657,025,493	311
1930.....	884,749,748	4,319,370,209	117,410,860	2,055,502,125	6,492,283,194	636
1940.....	590,205,536	4,609,213,977	145,603,299	2,220,505,184	6,975,322,460	613
1950.....	1,798,864,211	10,756,249,942	342,878,530	4,646,707,595	15,745,836,067	1,148
1960.....	5,692,887,763	30,418,380,871	1,554,844,168	12,675,749,459	44,648,974,498	2,499
1961.....	6,113,480,078	33,143,378,921	1,778,255,673	13,362,848,638	48,284,483,232	2,647
1962.....	6,027,069,888	35,907,032,820	2,040,700,311	14,285,636,913	52,233,370,044	2,811
1963.....	6,933,120,080	39,135,221,497	2,328,769,718	15,339,860,385	56,803,851,600	3,001
1964.....	7,802,504,767	43,209,488,534	2,706,336,254	16,756,485,863	62,672,310,651	3,249
1965.....	8,967,408,329	47,900,424,908	3,070,766,357	18,684,766,954	69,655,958,219	3,546
1966.....	9,040,333,979	52,622,094,411	3,521,137,968	20,681,132,082	76,824,364,461	3,838
1967.....	10,391,371,781	58,444,750,160	3,993,899,260	22,366,308,042	84,804,957,462	4,156
1968.....	11,516,412,171	64,410,352,029	4,517,653,327	24,284,689,877	93,212,695,233	4,493
1969.....	13,137,768,626	70,760,763,191	5,096,175,029	26,928,177,642	102,785,115,862	4,880
1970.....	12,915,444,219	76,774,967,949	5,726,666,532	28,614,802,283	111,116,436,764	5,198

<sup>1</sup> Based on official estimates of population.

## 3.—Summary of Life Insurance in Canada Transacted by Companies under Federal Registration, 1968-70

Item	1968	1969	1970
<b>Canadian Companies—</b>			
New policies effectuated during year..... No.	423,224	404,821	400,674
\$	7,685,823,254	8,495,669,102	8,270,156,561
Policies in force Dec. 31..... No.	5,654,910	5,658,853	5,665,698
\$	64,410,352,029	70,760,763,191	76,774,967,949
Policies ceased by death or maturity..... No.	62,504	60,625	59,669
\$	300,029,613	316,513,102	331,440,042
Insurance premiums..... \$	775,090,687	811,884,829	916,145,187
Claims incurred <sup>1</sup> ..... \$	310,374,110	330,847,131	346,562,462
<b>British Companies—</b>			
New policies effectuated during year..... No.	46,889	47,478	55,076
\$	803,292,793	950,253,381	969,094,569
Policies in force Dec. 31..... No.	375,387	390,607	410,298
\$	4,517,653,327	5,096,175,029	5,726,666,532
Policies ceased by death or maturity..... No.	2,654	2,838	2,753
\$	14,954,664	15,086,203	17,757,030
Insurance premiums..... \$	67,355,849	73,009,651	78,645,098
Claims incurred <sup>1</sup> ..... \$	14,542,127	15,260,217	18,120,591
<b>Foreign Companies—</b>			
New policies effectuated during year..... No.	238,000	230,252	233,376
\$	3,027,296,124	3,691,846,143	3,676,193,089
Policies in force Dec. 31..... No.	4,314,016	4,240,980	4,162,575
\$	24,284,689,877	26,928,177,642	28,614,802,283
Policies ceased by death or maturity..... No.	69,732	67,630	66,775
\$	123,995,402	131,046,003	141,442,819
Insurance premiums..... \$	322,531,494	333,405,689	354,066,779
Claims incurred <sup>1</sup> ..... \$	128,222,879	139,439,541	147,909,414
<b>All Companies—</b>			
New policies effectuated during year..... No.	708,113	682,551	689,126
\$	11,516,412,171	13,137,768,626	12,915,444,219
Policies in force Dec. 31..... No.	10,344,313	10,290,440	10,238,571
\$	93,212,695,233	102,785,115,862	111,116,436,764
Policies ceased by death or maturity..... No.	134,890	131,093	129,197
\$	438,979,679	462,645,308	490,639,891
Insurance premiums..... \$	1,164,978,030	1,218,300,169	1,548,857,064
Claims incurred <sup>1</sup> ..... \$	453,139,116	485,546,889	512,592,467

<sup>1</sup> Death, disability and maturity under insurance contracts.

#### 4.—Ordinary and Industrial Life Insurance Policies Effected and in Force in Canada by Companies under Federal Registration, 1968-70

Year, Type of Policy and Nationality of Company	New Policies Effected			Policies in Force Dec. 31		
	No.	Amount	Average Amount per Policy	No.	Amount	Average Amount per Policy
<b>1968</b>		\$	\$		\$	\$
<b>Ordinary Policies—</b>						
Canadian.....	419,359	4,671,029,198	11,138	5,539,219	34,380,205,522	6,207
British.....	46,732	724,882,961	15,511	353,585	3,730,619,721	10,551
Foreign.....	234,609	2,242,914,556	9,560	2,918,565	12,841,192,538	4,400
<b>Industrial Policies—</b>						
Canadian.....	—	—	—	88,139	51,725,588	587
British.....	—	—	—	20,798	2,393,521	115
Foreign.....	550	325,572	592	1,376,141	604,151,452	439
<b>1969</b>						
<b>Ordinary Policies—</b>						
Canadian.....	400,442	4,822,793,466	12,044	5,547,795	36,144,690,958	6,515
British.....	47,338	775,826,032	16,389	370,036	4,129,716,995	11,160
Foreign.....	227,776	2,305,284,696	10,121	2,940,069	13,716,754,580	4,665
<b>Industrial Policies—</b>						
Canadian.....	—	—	—	82,214	48,784,939	593
British.....	—	—	—	19,564	2,237,972	114
Foreign.....	—	—	—	1,281,953	569,511,241	444
<b>1970</b>						
<b>Ordinary Policies—</b>						
Canadian.....	397,407	4,970,562,919	12,507	5,561,054	38,260,377,381	6,880
British.....	54,792	838,259,261	15,299	390,658	4,605,871,787	11,790
Foreign.....	231,564	2,275,517,705	9,827	2,949,016	14,386,379,118	4,878
<b>Industrial Policies—</b>						
Canadian.....	—	—	—	76,470	45,807,171	599
British.....	—	—	—	18,467	2,100,985	114
Foreign.....	—	—	—	1,195,773	541,658,066	453

#### 5.—Group Life Insurance Effected and in Force in Canada by Companies under Federal Registration, 1968-70

Year and Nationality of Company	Effected		In Force Dec. 31			
	Policies	Amount	Policies	Certificates <sup>1</sup>	Amount	Average Amount per Certificate
<b>1968</b>	No.	\$	No.	No.	\$	\$
Canadian.....	3,865	3,014,794,056	27,552	9,745,873	29,978,420,919	3,076
British.....	157	78,409,832	1,004	115,492	784,640,085	6,794
Foreign.....	2,841	784,055,996	19,310	5,280,315	10,839,345,887	2,053
<b>1969</b>						
Canadian.....	4,379	3,672,875,636	28,844	10,299,783	34,567,287,294	3,356
British.....	140	174,427,349	1,007	139,176	964,220,062	6,928
Foreign.....	2,476	1,386,561,447	18,958	5,521,609	12,641,911,821	2,290
<b>1970</b>						
Canadian.....	3,267	3,299,593,642	28,174	10,148,007	38,468,783,397	3,791
British.....	284	130,835,308	1,173	138,451	1,118,693,760	8,080
Foreign.....	1,812	1,400,675,384	17,786	5,447,405	13,686,765,099	2,513

<sup>1</sup> Number of certificates issued under "shared" groups has been counted on a pro-rata basis.



## 6.—Insurance Death Rates in Canada, 1968-70

Type of Insurer	1968			1969			1970		
	Policies Exposed to Risk	Policies Terminated by Death	Death Rate per 1,000	Policies Exposed to Risk	Policies Terminated by Death	Death Rate per 1,000	Policies Exposed to Risk	Policies Terminated by Death	Death Rate per 1,000
	No.	No.		No.	No.		No.	No.	
All companies, ordinary.....	8,785,198	52,753	6.0	8,861,121	52,974	6.0	8,906,379	54,129	6.1
All companies, industrial.....	1,552,253	26,545	17.1	1,447,145	25,480	17.6	1,349,105	23,770	17.6
Fraternal benefit societies.....	518,762	4,445	8.6	547,320	4,576	8.4	610,594	5,186	8.5
<b>Totals.....</b>	<b>10,856,213</b>	<b>83,743</b>	<b>7.7</b>	<b>10,855,586</b>	<b>83,030</b>	<b>7.6</b>	<b>10,866,078</b>	<b>83,085</b>	<b>7.6</b>

## Subsection 3.—Finances of Companies Transacting Life Insurance under Federal Registration

The financial statistics in Tables 7 and 8 relate only to life insurance transacted by companies under federal registration. The figures for British and foreign companies apply to their assets, liabilities and operations in Canada only. On the other hand, the assets and liabilities, revenue and expenditure of Canadian companies are given for total business, including business arising outside of Canada as well as in Canada.

## 7.—Total Assets and Liabilities for Life Insurance of Canadian Companies under Federal Registration and Assets and Liabilities in Canada for Life Insurance of British and Foreign Companies under Federal Registration, 1968-70.

Assets and Liabilities	1968	1969 <sup>†</sup>	1970
	\$	\$	\$
<b>Canadian Companies</b>			
<b>Total Assets<sup>1</sup>.....</b>	<b>14,441,193,361</b>	<b>15,143,352,185</b>	<b>15,963,183,095</b>
Bonds.....	5,326,849,817	5,217,326,541	5,420,627,535
Stocks.....	1,033,868,902	1,188,893,000	1,232,405,364
Mortgage loans on real estate.....	6,039,126,694	6,247,613,087	6,341,065,051
Agreements on sale of real estate.....	11,923,128	13,999,176	13,321,114
Real estate.....	497,916,064	578,585,143	666,771,082
Ground rents.....	2	101,025,983	118,189,484
Policy loans.....	780,876,005	959,494,768	1,105,244,002
Cash.....	118,773,751	123,479,256	166,393,112
Investment income, due and accrued.....	148,203,905	155,225,134	170,705,842
Outstanding insurance premiums and annuity considerations.....	94,946,296	96,905,301	102,211,563
Assets in segregated funds (at market values).....	296,378,473	409,984,016	566,915,329
Other assets.....	94,330,326	50,820,780	59,333,617
<b>Total Liabilities.....</b>	<b>13,366,273,952</b>	<b>14,056,278,577</b>	<b>14,834,271,409</b>
Actuarial reserve for contracts in force.....	10,784,811,400	11,234,921,140	11,823,550,287
Outstanding claims under contracts.....	155,853,479	177,927,385	184,129,346
Amounts on deposit pertaining to contracts.....	1,151,182,443	1,171,332,900	1,129,582,263
Segregated funds.....	296,378,473	409,984,016	566,915,329
Other liabilities.....	978,048,157	1,062,113,136	1,130,064,184
Surplus.....	1,052,262,157	1,061,795,716	1,100,267,939
Capital stock paid up.....	22,657,252	25,277,892	28,643,747
<b>British Companies</b>			
<b>Assets in Canada<sup>3</sup>.....</b>	<b>1,071,487,839</b>	<b>1,131,156,439</b>	<b>1,180,877,530</b>
Bonds.....	408,414,602	393,765,871	394,648,762
Stocks.....	182,035,774	193,749,293	198,372,806
Mortgage loans on real estate.....	377,551,722	401,925,257	410,357,941
Real estate.....	27,311,002	27,785,223	27,358,003
Ground rents.....	2	19,258,298	20,168,298
Investments <sup>4</sup> .....	1	17,491,692	33,612,150

For footnotes, see end of table.

**7.—Total Assets and Liabilities for Life Insurance of Canadian Companies under Federal Registration and Assets and Liabilities in Canada for Life Insurance of British and Foreign Companies under Federal Registration, 1968-70—concluded.**

Assets and Liabilities	1968	1969 <sup>1</sup>	1970
	\$	\$	\$
<b>British Companies—concluded</b>			
<b>Assets in Canada—concluded</b>			
Policy loans.....	27,514,775	35,312,100	42,137,809
Cash.....	4,058,818	4,771,893	2,470,284
Investment income, due and accrued.....	4,637,637	5,284,284	6,114,004
Outstanding insurance premiums and annuity considerations.....	2,791,849	2,715,360	3,076,961
Segregated funds.....	13,344,376	22,235,908	33,892,339
Other assets.....	23,827,284	6,861,260	8,668,173
<b>Liabilities in Canada.....</b>	<b>986,018,078</b>	<b>1,005,955,759</b>	<b>1,094,625,747</b>
Actuarial reserve for contracts in force.....	937,758,622	945,636,508	1,020,970,802
Outstanding claims under contract.....	7,549,381	7,087,739	8,255,992
Segregated funds.....	13,281,338	22,816,086	34,509,375
Other liabilities.....	27,428,737	30,415,426	30,889,578
<b>Excess of Assets over Liabilities in Canada.....</b>	<b>85,469,761</b>	<b>125,200,680</b>	<b>86,251,783</b>
<b>Foreign Companies</b>			
<b>Assets in Canada<sup>3</sup>.....</b>			
Bonds.....	2,278,288,484	2,324,754,876	2,487,605,179
Stocks.....	1,138,205,998	1,058,421,012	1,109,061,249
Mortgage loans on real estate.....	2,927,535	2,188,266	4,203,600
Real estate.....	935,391,387	1,035,747,614	1,117,781,564
Ground rents.....	18,005,233	17,415,153	16,881,748
Investments <sup>4</sup> .....	2	2,000,000	2,000,000
Policy loans.....	5	4,242,938	4,108,034
Cash.....	113,057,720	125,097,923	141,525,984
Investment income, due and accrued.....	19,447,139	24,388,522	33,227,268
Outstanding insurance premiums and annuity considerations.....	29,057,732	30,344,899	32,505,269
Segregated funds.....	14,005,177	14,391,854	15,808,682
Other assets.....	2	5,564,286	7,339,997
	8,192,563	4,952,409	3,161,784
<b>Liabilities in Canada.....</b>	<b>2,119,884,737</b>	<b>2,198,948,406</b>	<b>2,288,486,637</b>
Actuarial reserve for contracts in force.....	1,879,470,827	1,936,957,784	2,013,089,555
Outstanding claims under contracts.....	35,096,340	36,879,757	37,025,991
Segregated funds.....		5,545,296	7,408,652
Other liabilities.....	205,317,570	219,565,569	230,962,439
<b>Excess of Assets over Liabilities in Canada.....</b>	<b>158,403,747</b>	<b>125,806,470</b>	<b>199,118,542</b>

<sup>1</sup> At book values. The liabilities include a reserve equal to the amount, if any, by which the total book value of bonds, stocks and real estate exceeds the total market value (or amortized value where applicable), subject to the provisions of Subsect. (4) of Sect. 71 of the Canadian and British Insurance Companies Act. <sup>2</sup> Included in "Other assets". <sup>3</sup> At market values. <sup>4</sup> Beginning 1969, includes the following items under the control of the Chief Agent: bonds, stocks, mortgage loans on real estate and real estate. <sup>5</sup> Not shown separately prior to 1969. See footnote 4. <sup>6</sup> Included in "Other liabilities".

**8.—Total Revenue and Expenditure for Life Insurance Transacted by Canadian Companies under Federal Registration and Revenue and Expenditure in Canada for Life Insurance Transacted by British and Foreign Companies under Federal Registration, 1968-70.**

Revenue and Expenditure	1968	1969	1970
	\$	\$	\$
<b>Canadian Companies<sup>1</sup></b>			
<b>Total Revenue.....</b>	<b>2,421,060,245</b>	<b>2,532,874,145</b>	<b>2,911,281,422</b>
Insurance premiums and annuity considerations.....	1,580,954,269	1,627,210,718	1,950,022,734
Investment income.....	800,137,645	840,996,325	897,879,079
Sundry items.....	39,968,331	64,667,102	63,379,609
<b>Total Expenditure.....</b>	<b>2,302,236,832</b>	<b>2,469,893,627</b>	<b>2,855,683,077</b>
Claims incurred.....	965,876,531	1,072,863,894	1,119,871,637
Normal increase in actuarial reserve.....	534,586,691	484,313,565	618,134,585
Taxes, licences and fees.....	52,450,530	101,804,015	102,705,041
Commissions and general expenses.....	385,302,625	421,393,109	464,636,706
Sundry items.....	115,500,157	134,039,376	282,712,516
Dividends to policyholders.....	230,462,413	248,400,949	254,497,951
Increase in provision for profits to policyholders.....	18,107,885	7,078,719	13,124,941

<sup>1</sup> Beginning 1970, includes segregated funds.

**8.—Total Revenue and Expenditure for Life Insurance Transacted by Canadian Companies under Federal Registration and Revenue and Expenditure in Canada for Life Insurance Transacted by British and Foreign Companies under Federal Registration, 1968-70—concluded.**

Revenue and Expenditure	1968	1969	1970
	\$	\$	\$
<b>Analysis of Increase in Surplus—</b>			
Excess of revenue over expenditure.....	118,773,413	62,980,518	55,598,345
Net capital gain on investments.....	-8,585,831	-37,338,317	-187,525
Other credits to surplus (net).....	-464,681	1,494,972	-902,378
Net increase in special reserves or funds.....	-27,645,508	-32,936,146	-24,998,494
Special increase in actuarial reserve.....	26,836,752	20,310,076	17,337,179
Dividends to shareholders.....	-4,171,991	-5,580,335	-7,831,973
Increase in surplus (policyholders and shareholders).....	104,742,154	8,930,768	39,015,149
<b>British Companies<sup>1</sup></b>			
<b>Revenue in Canada.....</b>	<b>177,213,375</b>	<b>193,636,755</b>	<b>217,567,903</b>
Insurance premiums and annuity considerations.....	111,103,004	120,233,988	140,886,640
Investment income.....	63,066,370	69,485,430	76,236,580
Sundry items.....	3,104,001	3,917,337	444,703
<b>Expenditure in Canada.....</b>	<b>102,188,726</b>	<b>119,636,591</b>	<b>129,404,759</b>
Claims incurred.....	52,844,074	63,050,842	68,079,853
Taxes, licences and fees.....	2,466,417	3,864,314	6,354,739
Commissions and general expenses.....	30,802,614	32,741,675	35,405,112
Other expenditure.....	3,004,623	3,524,319	3,738,959
Dividends to policyholders.....	13,070,998	16,455,441	15,826,096
<b>Foreign Companies<sup>1</sup></b>			
<b>Revenue in Canada.....</b>	<b>497,931,600</b>	<b>521,539,521</b>	<b>556,009,433</b>
Insurance premiums and annuity considerations.....	335,916,135	350,051,295	372,199,682
Investment income.....	136,066,262	145,017,500	158,769,862
Sundry items.....	25,949,203	26,470,726	25,039,891
<b>Expenditure in Canada.....</b>	<b>378,547,505</b>	<b>439,603,688</b>	<b>440,716,755</b>
Claims incurred.....	185,917,531	204,316,919	210,816,105
Taxes, licences and fees.....	21,321,661	38,147,285	39,617,175
Commissions and general expenses.....	80,350,803	83,366,294	91,537,876
Other expenditure.....	25,673,406	47,069,966	27,894,286
Dividends to policyholders.....	65,284,104	66,703,224	70,851,313

<sup>1</sup> Beginning 1970, includes segregated funds.

**Subsection 4.—Life Insurance in Canada Transacted by Fraternal Benefit Societies**

In addition to life insurance, some fraternal benefit societies grant other insurance benefits to members, notably sickness benefits, but these are relatively unimportant. Table 9 gives statistics of life insurance in Canada transacted by fraternal benefit societies and Table 10 shows statistics of assets, liabilities, income and expenditure relating to all business of Canadian societies and to the business in Canada of foreign societies. The rates charged by these societies are computed to be sufficient to provide the benefits granted, having regard for actuarial principles. The benefit funds of each society must be valued annually by a qualified actuary (Fellow, by examination, of the Institute of Actuaries of Great Britain, of the Faculty of Actuaries in Scotland, or of the Society of Actuaries) and a readjustment of rates or benefits must be made, unless the actuary certifies to the solvency of each fund. The first sections of Tables 9 and 10 relate to the Canadian societies registered by the federal Department of Insurance; there were 15 such societies at the end of 1970.

Under an amendment to the Insurance Act, effective Jan. 1, 1920, all foreign fraternal benefit societies were required to obtain authority from the Federal Government prior to transacting business in Canada. However, any such societies which at that date were transacting business under provincial licences, although forbidden to accept new members, were permitted to continue all necessary transactions in respect of insurance already in

force. Most of these societies and some foreign societies that had not been licensed previously by the provinces have since obtained federal authority to transact business. At the end of 1970 there were 33 foreign fraternal benefit societies federally registered to transact business in Canada, although one of these does not grant life insurance benefits.

**9.—Summary of Life Insurance in Canada Transacted by Fraternal Benefit Societies under Federal Registration, 1968-70**

Item	1968	1969	1970
<b>Canadian Societies</b>			
Premiums..... \$	15,428,510	21,916,464	24,524,719
Claims incurred..... \$	7,844,248	8,769,333	10,736,500
New certificates effected..... No.	48,293	87,435	43,286
..... \$	306,095,810	355,423,627	333,495,319
Certificates in force Dec. 31..... No.	374,235	415,646	462,809
..... \$	1,110,251,932	1,299,362,009	1,594,154,235
Certificates ceased by death or maturity..... No.	4,387	4,628	5,562
..... \$	5,060,017	5,702,614	6,929,737
<b>Foreign Societies</b>			
Premiums..... \$	6,582,642	6,818,718	7,069,629
Claims incurred..... \$	3,784,558	3,822,154	4,125,744
New certificates effected..... No.	11,788	10,481	9,901
..... \$	41,041,736	40,198,009	38,157,316
Certificates in force Dec. 31..... No.	150,722	149,461	149,050
..... \$	300,117,728	314,259,363	331,136,250
Certificates ceased by death or maturity..... No.	2,191	2,421	2,378
..... \$	2,262,963	2,352,853	2,495,353

**10.—Financial Statistics for Fraternal Benefit Societies under Federal Registration, 1968-70**

Item	1968	1969	1970
	\$	\$	\$
<b>Canadian Societies <sup>1</sup></b>			
<b>Assets</b> .....	<b>352,046,498</b>	<b>383,982,037</b>	<b>445,592,774</b>
Bonds.....	228,981,103	250,376,497	295,315,669
Stocks.....	18,364,399	22,401,562	24,382,821
Mortgage loans on real estate.....	59,550,121	62,004,162	68,026,295
Agreements of sale of real estate.....	171,958	62,119	69,633
Real estate.....	16,262,010	16,162,866	16,766,975
Certificate loans and liens.....	13,752,654	17,656,976	21,422,793
Cash.....	3,562,895	3,553,178	5,812,135
Investment income, due and accrued.....	3,365,667	3,877,646	4,843,820
Outstanding premiums, contributions and dues.....	6,332,369	5,664,363	5,858,865
Other.....	1,703,322	2,222,668	3,093,768
<b>Liabilities and Surplus</b> .....	<b>352,046,498</b>	<b>383,982,037</b>	<b>445,592,774</b>
Actuarial reserve.....	249,920,331	277,774,394	323,676,403
Outstanding claims.....	4,390,389	4,734,956	4,738,557
Amounts on deposit.....	2,790,176	3,512,497	4,538,412
Other.....	64,212,452	72,117,258	82,897,040
Surplus.....	30,733,150	25,842,932	29,742,362
<b>Revenue</b> .....	<b>83,589,916</b>	<b>94,929,451</b>	<b>107,316,478</b>
Premiums, contributions and dues.....	64,500,334	73,014,042	79,218,347
Investment income.....	17,596,185	20,095,113	24,507,439
Other.....	1,493,397	1,820,296	3,590,692

<sup>1</sup> All funds, business in and out of Canada.



**10.—Financial Statistics for Fraternal Benefit Societies under Federal Registration,  
1968-70—concluded**

Item	1968	1969	1970
	\$	\$	\$
<b>Canadian Societies<sup>1</sup>—concluded</b>			
<b>Expenditure.....</b>	<b>77,870,531</b>	<b>93,468,896</b>	<b>102,313,579</b>
Claims incurred.....	21,477,598	23,703,448	26,257,830
Increase in actuarial reserve.....	21,048,750	27,851,721	28,629,362
Taxes, licences and fees.....	464,876	966,507	1,086,669
Commissions.....	10,938,470	12,007,444	14,200,855
General expenses.....	14,311,065	18,457,818	18,594,291
Other.....	2,180,979	2,134,314	4,182,576
Dividends to members.....	6,773,872	7,426,866	8,474,931
Increase in provision for dividends to members.....	674,921	920,778	887,065
<b>Analysis of Increase in Surplus—</b>			
Excess of revenue over expenditure.....	5,719,385	1,460,555	5,002,899
Net capital gain on investments.....	-620,250	492,488	-116,980
Other credits to surplus (net).....	114,754	-329,257	-566,746
Net increase in special reserves.....	-2,561,447	-6,403,880	-2,892,281
Increase in surplus.....	2,652,442	-4,780,094	1,426,892
<b>Foreign Societies<sup>2</sup></b>			
<b>Assets.....</b>	<b>66,634,704</b>	<b>66,746,362</b>	<b>72,322,895</b>
Bonds.....	53,788,486	52,467,774	57,183,986
Stocks.....	865,155	824,243	747,706
Mortgage loans on real estate.....	5,017,723	6,175,377	7,152,692
Certificate loans and liens.....	3,640,064	4,029,574	4,350,840
Cash.....	1,989,519	2,013,648	1,512,924
Investment income, due and accrued.....	968,995	1,011,211	1,113,823
Outstanding premiums, contributions and dues.....	212,898	221,881	257,732
Other.....	151,864	2,654	3,192
<b>Liabilities.....</b>	<b>57,446,134</b>	<b>60,588,193</b>	<b>61,917,232</b>
Actuarial reserve.....	51,048,639	53,667,810	55,258,193
Outstanding claims.....	637,282	639,208	599,837
Other.....	5,760,213	6,281,175	6,059,202
<b>Revenue.....</b>	<b>12,604,650</b>	<b>13,060,922</b>	<b>13,128,496</b>
Premiums, contributions and dues.....	8,274,104	8,455,872	8,050,846
Investment income.....	3,698,593	3,950,956	4,368,444
Other.....	631,953	654,094	709,206
<b>Expenditure.....</b>	<b>7,794,643</b>	<b>8,641,234</b>	<b>8,806,432</b>
Claims incurred.....	4,626,219	4,757,459	4,502,198
Taxes, licences and fees.....	51,532	352,263	278,984
Commissions.....	637,808	670,372	659,703
General expenses.....	1,093,748	1,099,062	1,431,480
Other.....	384,285	492,546	636,742
Dividends to members.....	1,001,051	1,269,532	1,297,325

<sup>1</sup> All funds, business in and out of Canada.<sup>2</sup> All funds, business in Canada only.

**Subsection 5.—Life Insurance Effectuated and in Force Outside Canada by  
Canadian Companies under Federal Registration**

In this Subsection, there are given for the years 1969 and 1970 summary statistics of insurance effectuated and insurance in force at the end of the year in currencies other than Canadian dollars, as written by Canadian companies under federal registration. The data given are in terms of Canadian dollars, the conversions from the various foreign currencies having been made at the book rates of exchange used by the various companies.

Canadian life insurance companies operating under federal registration at Dec. 31, 1970 had life insurance in force amounting to \$32,573,350,990 in countries outside Canada. Insurance in force in currencies other than Canadian dollars amounted to \$32,465,754,127; the difference between these figures is presumably the net amount of business in countries outside Canada transacted in Canadian currency. The business in force in Canada of Canadian companies registered by the Federal Government amounted to \$76,774,967,949 at Dec. 31, 1970, and the total business on the books of these companies, in and out of Canada, amounted to \$109,348,318,939. Thus, over 29 p.c. of the total business in force

for Canadian companies registered by the Federal Government was in force in countries outside Canada. In connection with their business outside Canada, the Canadian life insurance companies registered by the Federal Government held, at the end of 1970, Commonwealth and foreign investments in the amount of \$4,832,524,452.

Approximately 75 p.c. of all business in force in currencies other than Canadian is in United States currency and 15 p.c. is in sterling. From a slightly different point of view, approximately 19 p.c. of this business in force is in currencies of Commonwealth countries other than Canada, and 81 p.c. in currencies of foreign countries.

**11.—Life Insurance Effectuated and in Force for Canadian Companies (excluding Fraternal Societies) under Federal Registration, in Currencies other than Canadian Dollars, by Currency, 1969 and 1970.**

Currency	1969		1970	
	Insurance Effectuated	Insurance in Force	Insurance Effectuated	Insurance in Force
	\$	\$	\$	\$
<b>Commonwealth Currencies</b> .....	<b>955,040,527</b>	<b>5,669,918,200</b>	<b>1,155,321,095</b>	<b>6,305,825,166</b>
Pounds—				
Sterling.....	715,310,352	4,278,287,215	895,474,859	4,757,762,108
Bermuda.....	2,487,584	10,921,339	—	—
British West Indies, Bermuda and Jamaica.....	8,824,439	46,557,382	—	—
Cyprus.....	—	7,485,038	—	7,180,428
Rhodesia.....	—	78,576,961	—	—
Dollars—				
Australia.....	59,300	144,560	131,100	483,222
Bahamas.....	24,871,060	125,728,916	45,965,991	163,420,041
Bermuda.....	—	—	3,953,021	40,558,532
British Honduras.....	—	418,096	69,579	372,783
British West Indies.....	3,129,350	33,362,108	347,300	7,557,835
East Caribbean.....	5,110,872	37,013,209	7,806,512	43,897,559
Guyana.....	72,887,263	382,179,552	18,539,457	121,126,025
Hong Kong.....	5,932,543	35,189,839	4,067,630	39,528,798
Jamaica.....	76,957,813	361,966,654	139,074,161	733,876,451
Malaysia.....	—	5,006,688	—	4,494,778
Rhodesia.....	—	—	—	74,417,413
Singapore.....	—	9,544,030	—	8,383,716
Trinidad and Tobago.....	39,469,951	221,240,681	39,891,485	269,965,118
Kwachas—				
Zambia.....	—	10,871,244	—	9,348,445
Rupees—				
Ceylon.....	—	12,661,171	—	11,389,582
India.....	—	1,153,386	—	1,098,917
Pakistan.....	—	407,110	—	331,949
Shillings—				
East Africa.....	—	11,203,021	—	10,631,466
<b>Foreign Currencies</b> .....	<b>3,872,952,116</b>	<b>23,442,677,745</b>	<b>4,490,807,060</b>	<b>26,159,928,961</b>
Bahts (Thailand).....	—	1,821	—	1,321
Bolivars (Venezuela).....	970,027	22,227,130	553,970	20,629,870
Colonos (El Salvador).....	—	—	390,390	1,993,568
Cordobas (Nicaragua).....	—	1,193	—	1,193
Dollars (United States of America).....	3,629,147,620	21,651,031,774	4,218,186,880	24,224,406,875
Francs (Belgium).....	—	550	—	550
Francs (Switzerland).....	143,400	468,600	169,600	525,600
Guilders (Netherlands).....	—	113,416	—	94,650
Guilders (Netherlands Antilles).....	12,998,287	46,773,212	11,961,224	53,854,613
Kyats (Burma).....	—	5,941	—	5,521
Pesos (Argentina).....	—	145,348	—	51
Pesos (Colombia).....	—	36,200	—	35,000
Pesos (Cuba).....	—	22,255,568	—	19,126,007
Pesos (Dominican Republic).....	14,397,271	87,340,097	16,055,931	106,096,377
Pesos (Mexico).....	—	1,504,206	—	3,137,863
Pesos (Philippines).....	24,407,218	131,573,956	30,813,547	151,173,765
Pounds (Israel).....	24,953,626	137,787,508	21,662,867	151,856,343
Pounds (Republic of Ireland).....	32,442,041	185,371,354	35,976,979	209,437,501
Pounds (United Arab Republic).....	—	2,923,091	—	2,567,688
Rand (South Africa).....	133,492,626	1,153,116,741	155,035,672	1,214,984,597
Soles (Peru).....	—	31	—	—
Yen (Japan).....	—	8	—	8
<b>Totals</b> .....	<b>4,827,992,643</b>	<b>29,112,595,945</b>	<b>5,646,128,155</b>	<b>32,465,754,127</b>

## Section 2.—Fire and Casualty Insurance

At the end of 1970 there were 232 companies registered by the Federal Government to transact fire insurance in Canada (82 Canadian, 45 British and 105 foreign). Of these companies, 226 (78 Canadian, 44 British and 104 foreign) were also registered to transact casualty insurance. In addition, 123 companies were registered by the Federal Government to transact casualty insurance but not fire insurance (35 Canadian, 6 British and 82 foreign). Of the companies registered to transact fire and/or casualty insurance, 99 were also registered to transact life insurance; 13 of these were registered for fire, life and casualty insurance and 86 for life and casualty but not fire insurance. It should also be noted that, in addition to the companies registered by the Federal Government to transact casualty insurance, there were 31 registered fraternal benefit societies transacting accident and sickness insurance, of which 30 also transacted life insurance.

The operations analysed in the tables of this Section, with exception of Table 12, include only those companies under federal registration. As shown in Table 12, some fire and casualty insurance is transacted in Canada by companies that are provincially licensed only. These companies generally confine their operations to the province of incorporation and many of them are mutual organizations transacting only fire insurance on a county, municipal or parish basis. The table relates to insurance companies only; no data are included for fraternal benefit societies.

**12.—Fire and Casualty Insurance Transacted in Canada, 1969 and 1970**

Item	1969		1970	
	Net Premiums Written	Net Claims Incurred	Insurance Effected	Insurance in Force
	\$	\$	\$	\$
<b>Fire Insurance</b>				
Federally registered companies <sup>1</sup> .....	339,465,103	181,026,365	372,381,011	202,964,470
Provincial licensees.....	47,651,859	24,785,752	57,275,412	30,168,764
In province by which incorporated.....	42,604,954	21,591,206	49,979,331	25,962,194
Outside province by which incorporated....	5,046,905	3,194,546	7,296,081	4,206,570
Lloyds, London.....	9,953,372	9,385,766	11,170,573	9,274,757
<b>Totals, Fire<sup>1</sup>.....</b>	<b>397,070,334</b>	<b>215,197,883</b>	<b>440,826,996</b>	<b>242,407,991</b>
<b>Casualty Insurance</b>				
Federally registered companies <sup>1</sup> .....	1,443,653,149	991,135,482	1,523,093,734	994,817,686
Provincial licensees.....	164,410,749	105,556,911	188,238,337	115,801,684
In province by which incorporated.....	142,947,188	90,094,200	167,586,855	102,578,142
Outside province by which incorporated....	21,463,561	15,462,711	20,651,482	13,223,542
Lloyds, London.....	49,523,781	33,827,297	54,404,398	34,018,009
<b>Totals, Casualty <sup>1</sup>.....</b>	<b>1,657,587,679</b>	<b>1,130,519,690</b>	<b>1,765,736,469</b>	<b>1,144,637,379</b>
<b>Totals, Fire and Casualty <sup>1</sup>.....</b>	<b>2,054,658,013</b>	<b>1,345,717,573</b>	<b>2,206,563,465</b>	<b>1,387,045,370</b>

<sup>1</sup> Registered or licensed reinsurance deducted from all companies.

### Subsection 1.—Fire Insurance Transacted in Canada by Companies under Federal Registration

Net premiums written and net claims incurred during each year from 1961 to 1970 are given in Table 13 and the figures for 1970 are classified by province and nationality of company in Table 14.

### 13.—Fire Insurance Transacted in Canada by Companies under Federal Registration, 1961-70

(Less all reinsurance for Canadian companies and registered or licensed reinsurance only for British and foreign companies)

Year	Net Premiums Written during Year	Net Claims Incurred during Year	Year	Net Premiums Written during Year	Net Claims Incurred during Year
	\$	\$		\$	\$
1961.....	200,859,825	96,343,611	1966.....	236,699,967	120,452,654
1962.....	200,768,495	104,472,605	1967.....	265,400,312	124,354,649
1963.....	196,915,780	125,252,467	1968.....	286,624,901	136,820,374
1964.....	205,276,365	110,502,299	1969.....	315,845,707	164,808,137
1965.....	224,356,436	111,570,118	1970.....	344,263,402	186,715,554

### 14.—Fire Insurance in Canada classified by Province and by Nationality of Company under Federal Registration, 1970

(Registered or licensed reinsurance deducted)

Province or Territory	Canadian Companies		British Companies		Foreign Companies	
	Net Premiums Written	Net Claims Incurred	Net Premiums Written	Net Claims Incurred	Net Premiums Written	Net Claims Incurred
	\$	\$	\$	\$	\$	\$
Newfoundland.....	2,286,350	887,682	1,352,477	527,700	2,167,617	705,743
Prince Edward Island.....	666,093	388,660	537,027	263,244	259,210	164,431
Nova Scotia.....	5,818,788	2,389,922	3,323,827	1,349,861	3,340,707	1,423,584
New Brunswick.....	4,917,959	2,532,607	2,728,413	1,377,080	3,769,249	1,590,907
Quebec.....	45,566,458	21,177,521	21,945,076	9,540,143	41,904,134	23,898,231
Ontario.....	60,144,059	32,983,203	22,799,207	14,389,886	56,213,600	33,548,465
Manitoba.....	8,148,882	4,804,784	2,238,693	1,498,537	4,312,014	2,674,549
Saskatchewan.....	4,814,697	2,688,305	973,054	696,354	1,990,770	1,181,406
Alberta.....	12,531,683	6,463,193	3,666,004	1,967,527	8,074,115	4,752,414
British Columbia.....	18,297,284	10,622,625	7,882,384	4,257,918	18,483,220	11,692,731
Yukon and Northwest Territories.....	445,949	327,663	336,891	46,923	445,120	150,671
<b>Canada.....</b>	<b>163,638,202</b>	<b>85,266,165</b>	<b>67,783,053</b>	<b>35,915,173</b>	<b>140,959,756</b>	<b>81,783,132</b>

### Subsection 2.—Fire Losses

The information in Tables 15 to 17 which deals with the loss of property and life caused by fire, has been summarized from the annual report *Fire Losses in Canada* prepared by the Dominion Fire Commissioner, Department of Public Works. Federal losses, not included in these figures, in 1970 amounted in \$3,789,243 from 1,404 fires; average federal losses for the period 1961-70 amounted to \$4,116,087 from an annual average of 1,671 fires.

### 15.—Statistics of Fire Losses, 1961-70

(Excludes forest fires and Federal Government property losses)

Year	Fires Reported	Property Loss	Loss per Capita	Deaths by Fire	Year	Fires Reported	Property Loss	Loss per Capita	Deaths by Fire
	No.	\$	\$	No.		No.	\$	\$	No.
1961.....	83,706	128,262,047	7.03	556	1966.....	68,463	162,718,013	8.17	578
1962.....	85,585	140,144,643	7.55	626	1967.....	65,941	162,370,992	7.96	681
1963.....	83,027	154,051,629	8.15	553	1968.....	64,657	166,703,354	8.04	654
1964.....	75,306	148,376,961	7.71	603	1969.....	64,914	197,102,448	9.35	620
1965.....	68,432	144,179,977	7.37	589	1970.....	67,719	204,194,431	9.55	636



The provincial property losses given in Table 16 include both insured and uninsured losses.

**16.—Fire Losses, by Province, 1966-70**

(Excludes forest fires and Federal Government property losses)

Province or Territory	Property Loss				1970		
	1966	1967	1968	1969	Fires Reported	Property Loss	Loss per Capita
	\$	\$	\$	\$	No.	\$	\$
Newfoundland.....	12,755,810	767,777	1,603,224	2,109,940	182	1,730,644	3.34
Prince Edward Island..	885,967	743,167	798,809	1,207,991	543	909,143	8.26
Nova Scotia.....	5,078,418	5,595,602	4,960,289	5,791,411	2,039	5,102,558	6.66
New Brunswick.....	5,914,333	3,476,562	4,331,661	4,153,419	1,261	4,433,527	7.11
Quebec.....	44,776,585	45,020,939	47,971,987	54,087,557	22,880	59,561,045	9.91
Ontario.....	44,786,691	55,827,990	57,844,479	66,120,427	23,291	67,911,559	8.89
Manitoba.....	7,362,495	6,020,027	8,614,608	7,102,636	3,060	7,990,195	8.14
Saskatchewan.....	3,786,903	5,142,078	3,965,733	6,822,950	1,844	4,679,138	4.97
Alberta.....	12,005,858	17,618,843	14,353,838	18,233,461	4,804	15,647,698	9.78
British Columbia.....	23,145,579	21,490,053	21,116,971	27,514,446	7,546	34,561,074	16.17
Yukon and Northwest Territories.....	2,219,374	667,954	1,141,755	3,958,210	269	1,667,850	34.04
<b>Canada.....</b>	<b>162,718,013</b>	<b>162,370,992</b>	<b>166,703,354</b>	<b>197,102,448</b>	<b>67,719</b>	<b>204,194,431</b>	<b>9.55</b>

**17.—Fire Losses, by Type of Property and Cause of Fire, 1968-70**

(Excludes forest fires and Federal Government property losses)

Type of Property and Reported Cause of Fire	1968		1969		1970	
	Fires Reported	Property Loss	Fires Reported	Property Loss	Fires Reported	Property Loss
	No.	\$	No.	\$	No.	\$
<b>Type of Property</b>						
Residential.....	44,117	45,372,597	44,949	50,524,102	45,634	61,014,276
Mercantile.....	4,025	40,167,813	3,510	49,560,191	3,199	37,218,857
Farm.....	5,746	16,748,773	6,275	19,518,284	7,023	22,352,628
Manufacturing.....	1,508	25,448,766	1,953	33,803,782	1,466	25,288,471
Institutional and assembly.....	1,146	12,410,127	1,416	15,190,881	1,828	17,432,571
Miscellaneous.....	8,115	26,555,278	6,811	28,505,208	8,569	40,887,028
<b>Totals.....</b>	<b>64,657</b>	<b>166,703,354</b>	<b>64,914</b>	<b>197,102,448</b>	<b>67,719</b>	<b>204,194,431</b>
<b>Reported Cause</b>						
Smokers' carelessness.....	18,441	8,488,964	18,584	9,417,919	19,407	13,193,382
Stoves, furnaces, boilers and smoke pipes.....	3,896	9,052,465	3,802	12,641,151	4,274	13,335,192
Electrical wiring and appliances.....	9,048	22,337,635	9,490	26,735,860	9,800	29,103,187
Matches.....	2,372	3,012,999	2,007	4,429,301	1,183	2,173,559
Defective and overheated chimneys and flues.....	1,055	1,094,291	1,191	1,897,682	867	1,692,931
Hot ashes, coals and open fires.....	1,258	1,696,440	1,516	3,466,670	3,156	13,341,081
Petroleum and its products.....	1,813	7,587,674	1,944	7,153,102	1,532	6,892,914
Lights, other than electric.....	1,385	3,828,789	1,424	3,419,110	793	1,221,420
Lightning.....	2,929	2,629,103	2,846	2,842,415	2,575	2,648,881
Sparks on roofs.....	208	363,970	198	884,552	89	266,770
Exposure fires.....	604	2,682,701	473	4,103,171	801	4,690,987
Spontaneous ignition.....	386	2,789,480	484	3,579,355	267	2,635,715
Incendiarism.....	1,268	9,711,868	2,122	12,660,912	2,211	14,852,462
Miscellaneous known causes (explosions, fireworks, friction, hot grease or metal, steam or hot water pipes, etc.).....	10,542	13,902,946	10,091	15,997,917	8,141	18,202,171
Unknown.....	9,452	77,524,029	8,742	87,873,331	12,623	79,943,779

### Subsection 3.—Casualty Insurance Transacted in Canada by Companies under Federal Registration

The various classes of casualty insurance are shown in Table 18. These figures relate only to companies registered by the Federal Government.

#### 18.—Net Casualty Premiums Written, Premiums Earned and Claims Incurred in Canada, 1970

NOTE.—Excluding marine insurance for which a certificate of registration is not required. Less all reinsurance for Canadian companies and registered or licensed reinsurance only for British and foreign companies.

Class of Insurance	Premiums Written				Premiums Earned	Claims Incurred
	Canadian Companies	British Companies	Foreign Companies	Total	All Companies	All Companies
	\$	\$	\$	\$	\$	\$
Aircraft.....	830,956	10,463,473	7,996,070	19,290,499	17,422,239	11,881,023
Automobile.....	408,521,779	136,337,516	271,899,522	816,758,817	782,567,234	529,523,488
Boiler—						
Boiler.....	5,132,628	1,656,152	4,587,105	11,375,885	10,966,858	2,159,404
Machinery.....	3,664,816	1,011,060	3,063,528	7,739,404	6,700,343	2,748,500
Credit.....	498,859	—	851,942	1,350,801	1,348,321	675,620
Earthquake.....	60,036	42,898	84,090	187,024	195,022	10,371
Explosion.....	—	—	90	90	90	8
Forgery.....	144,374	20,694	18,936	184,004	166,356	13,348
Guarantee—						
Fidelity.....	4,080,586	988,676	4,091,913	9,161,175	8,850,309	4,755,402
Surety.....	8,172,809	1,118,332	12,818,691	22,109,832	21,925,071	8,399,435
Hail.....	626,395	91,949	2,864,887	3,583,231	3,584,631	1,500,181
Inland transportation.....	3,340,117	1,873,914	9,362,636	14,576,667	14,146,431	7,478,293
Liability—						
Public liability.....	35,226,413	14,262,668	26,738,506	76,227,587	74,234,201	42,501,384
Employers' liability.....	3,019,288	3,810,472	1,425,488	8,255,248	8,475,082	5,052,290
Livestock.....	141,206	203,108	153,901	498,215	553,727	244,312
Mortgage.....	484,856	—	—	484,856	502,540	8,125
Personal accident and sickness.....	182,123,283	6,254,022	192,684,777	381,062,082	377,230,434	283,465,966
Personal property.....	32,905,000	17,616,396	35,758,202	86,279,598	83,526,639	48,665,484
Plate glass.....	2,316,081	999,267	1,291,030	4,606,378	4,452,795	2,696,402
Real property.....	1,942,350	1,799,064	3,268,571	7,009,985	6,516,774	3,370,445
Sprinkler leakage.....	—	—	—	—	—	—
Theft.....	5,805,769	2,361,693	3,891,163	12,058,625	11,963,452	7,269,161
Title.....	—	—	92,210	92,210	88,663	2,082
Weather.....	1,598	—	14,382	15,980	15,980	13,213
Windstorm.....	545,339	—13	32,956	578,282	698,810	288,339
<b>Totals.....</b>	<b>699,584,538</b>	<b>200,911,341</b>	<b>582,990,596</b>	<b>1,483,486,475</b>	<b>1,436,132,062</b>	<b>962,722,186</b>

### Subsection 4.—Finances of Companies Transacting Fire and Casualty Insurance under Federal Registration

The financial statistics of Tables 19 and 20 relate to fire and casualty insurance transacted by companies under federal registration. The figures for British and foreign companies apply to their assets, liabilities and operations in Canada only. On the other hand, the assets and liabilities, revenue and expenditure of Canadian companies are given for total business, including business arising out of Canada as well as in Canada.

**19.—Total Assets and Liabilities for Fire and Casualty Insurance of Canadian Companies and Assets and Liabilities in Canada for Fire and Casualty Insurance of British and Foreign Companies under Federal Registration, 1968-70.**

Assets and Liabilities	1968	1969	1970
	\$	\$	\$
<b>Canadian Companies<sup>1</sup></b>			
<b>Total Assets<sup>2</sup></b> .....	<b>1,216,430,637</b>	<b>1,294,981,998</b>	<b>1,409,287,010</b>
Bonds.....	688,513,896	732,602,551	779,211,676
Stocks.....	239,612,756	265,304,801	298,388,298
Mortgage loans and agreements of sale.....	55,421,429	63,226,704	66,021,660
Real estate.....	18,507,032	18,065,479	19,656,768
Cash.....	55,315,878	47,433,767	68,908,126
Investment income, due and accrued.....	10,844,313	11,929,314	13,225,794
Amounts due from agents and uncollected premiums.....	116,309,093	125,366,893	138,409,504
Other assets.....	64,430,696	79,320,651	84,419,250
Adjustment for excess of book value over market value.....	-32,524,456	-48,268,162	-58,954,066
<b>Total Liabilities</b> .....	<b>875,154,998</b>	<b>942,437,347</b>	<b>1,033,501,893</b>
Reserve for unearned premiums.....	302,865,325	328,296,679	350,242,583
Additional policy reserves.....	12,712,340	15,142,080	13,838,353
Provision for unpaid claims.....	383,828,046	429,246,942	472,956,855
Investment, contingency or general reserves.....	31,353,576	27,784,798	27,900,288
Other liabilities.....	144,395,711	141,966,848	168,563,814
Capital stock paid <sup>3</sup> .....	53,382,386	56,221,836	57,411,786
Amount transferred from other funds.....	23,560,537	27,281,899	29,153,261
Surplus.....	264,332,716	269,040,916	289,220,070
<b>British Companies<sup>4</sup></b>			
<b>Assets in Canada<sup>5</sup></b> .....	<b>423,827,846</b>	<b>430,336,106</b>	<b>477,817,736</b>
Bonds.....	271,777,002	268,767,290	306,125,843
Stocks.....	67,491,368	71,499,378	71,948,178
Mortgage loans and agreements of sale.....	6,198,407	7,958,454	10,112,588
Real estate.....	2,764,314	2,357,326	2,038,167
Cash.....	18,151,115	15,915,064	16,331,279
Investment income, due and accrued.....	3,542,385	4,404,990	5,175,087
Amounts due from agents and uncollected premiums.....	41,933,262	45,025,211	46,869,493
Other assets.....	11,969,993	14,408,393	19,217,101
<b>Liabilities in Canada</b> .....	<b>280,041,296</b>	<b>299,803,935</b>	<b>307,110,319</b>
Reserve for unearned premiums.....	119,774,288	124,067,575	127,772,043
Additional policy reserves.....	1,540,589	1,401,627	979,616
Provision for unpaid claims.....	137,217,924	150,568,783	156,631,769
Other liabilities.....	21,508,496	23,765,950	21,829,891
<b>Excess of Assets over Liabilities in Canada</b> .....	<b>143,786,550</b>	<b>130,532,171</b>	<b>170,707,417</b>
<b>Foreign Companies<sup>4</sup></b>			
<b>Assets in Canada<sup>5</sup></b> .....	<b>828,020,624</b>	<b>900,395,710</b>	<b>1,086,272,605</b>
Bonds.....	625,068,622	668,932,630	819,681,851
Stocks.....	37,035,470	47,011,232	49,239,484
Mortgage loans and agreements of sale.....	2,018,386	2,244,224	3,717,245
Real estate.....	7,247,900	7,521,843	8,263,155
Cash.....	37,481,088	38,248,615	59,891,135
Investment income, due and accrued.....	10,178,414	12,495,111	15,482,517
Amounts due from agents and uncollected premiums.....	75,780,433	83,397,905	84,113,743
Other assets.....	33,210,411	39,944,150	46,383,475
<b>Liabilities in Canada</b> .....	<b>600,488,835</b>	<b>691,691,635</b>	<b>775,554,968</b>
Reserve for unearned premiums.....	261,821,986	288,985,093	313,475,128
Additional policy reserves.....	15,107,870	16,291,170	19,130,401
Provision for unpaid claims.....	269,262,640	319,425,055	366,469,186
Other liabilities.....	54,296,339	66,990,317	76,480,253
<b>Excess of Assets over Liabilities in Canada</b> .....	<b>227,531,789</b>	<b>208,704,075</b>	<b>310,717,637</b>

<sup>1</sup> Business in and out of Canada. <sup>2</sup> At book values. The amount, if any, by which the total book value of bonds, stocks and real estate exceeds the total market value is shown separately as a deduction to assets.  
<sup>3</sup> Including guarantee fund. <sup>4</sup> Business in Canada only. <sup>5</sup> At market values.

**20.—Underwriting Account and Analysis of Surplus of Canadian Companies and Underwriting Account and Investment Income in Canada of British and Foreign Companies Transacting Fire and Casualty Insurance under Federal Registration, 1969 and 1970.**

Item	1969	1970
	\$	\$
<b>Canadian Companies</b> (In and out of Canada)		
<b>Underwriting Account—</b>		
Underwriting income earned.....	899,174,725	939,192,442
Less disbursements:		
Claims incurred.....	622,705,155	636,144,571
Commissions and general expenses.....	280,990,360	300,252,690
Premium taxes, licences and fees.....	21,574,745	22,444,729
Dividends to policyholders.....	7,153,682	8,899,450
Underwriting gain or loss (—).....	-33,249,217	-28,548,998
<b>Analysis of Increase in Surplus—</b>		
Underwriting gain or loss (—).....	-33,249,217	-28,548,998
Investment income.....	60,163,101	67,784,782
Other investment account items.....	-14,271,973	-11,485,012
Income taxes.....	-7,126,853	-12,902,381
Dividends to shareholders.....	-8,703,412	-8,921,757
Other surplus items.....	2,253,611	5,413,593
Premium on capital stock or surplus paid in.....	5,869,000	10,375,000
Increase in surplus.....	4,934,257	21,715,227
<b>British Companies</b>		
<b>Underwriting Account in Canada—</b>		
Underwriting income earned.....	248,880,882	265,499,141
Less disbursements:		
Claims incurred.....	161,005,836	157,869,790
Commissions and general expenses.....	92,667,922	96,621,325
Premium taxes, licences and fees.....	6,025,133	6,211,496
Dividends to policyholders.....	16,603	29,636
Underwriting gain or loss (—).....	-10,834,612	4,766,894
Income taxes.....	1,416,473	3,213,034
Investment income.....	18,847,115	22,144,954
<b>Foreign Companies</b>		
<b>Underwriting Account in Canada—</b>		
Underwriting income earned.....	634,021,130	697,790,338
Less disbursements:		
Claims incurred.....	437,161,517	457,396,796
Commissions and general expenses.....	193,964,393	213,818,917
Premium taxes, licences and fees.....	15,161,702	15,939,949
Dividends to policyholders.....	6,921,051	9,456,773
Underwriting gain or loss (—).....	-19,187,533	1,177,903
Income taxes.....	5,867,659	9,965,152
Investment income.....	44,383,356	54,209,768

### Section 3.—Government Insurance

#### Federal Government Insurance

In recent years, various insurance schemes have been adopted by the Federal Government or undertaken co-operatively by the federal and provincial governments. Information on unemployment insurance, hospital insurance, veterans insurance, export credit insurance, etc., will be found in the appropriate Chapters on Labour, Health and Welfare, Foreign Trade, etc.

**Deposit Insurance.**—The Canada Deposit Insurance Corporation (RSC 1970, c. C-3) was established in 1967 to provide for the benefit of persons having deposits with a member of the Corporation, insurance against the loss of deposits up to a maximum of \$20,000 for any one depositor.



Membership in the Deposit Insurance Corporation is obligatory for chartered banks, Quebec savings banks and those federally incorporated loan and trust companies that accept deposits from the public. Provincially incorporated loan and trust companies that accept deposits from the public are eligible to apply for membership if they have the consent of the province of incorporation.

The definition of deposits, as set out in the general by-law of the Corporation, might be summarized as money received by a member institution that is repayable on demand or notice and money that is repayable on a fixed date not more than five years after the date on which the money is received. Deposits not payable in Canada or in Canadian currency are not insured.

### **Provincial Government Insurance\***

**Manitoba.**—The Manitoba Public Insurance Corporation is a Crown corporation established under the Automobile Insurance Act proclaimed Sept. 21, 1970, and created by order of the Lieutenant-Governor in Council on Sept. 29, 1970. The Act and its Regulations provide for the establishment of a universal, compulsory automobile insurance plan and of other plans of automobile insurance within the province.

The plan, known as *Autopac*, provides the following basic coverage on Manitoba-licensed motor vehicles: (1) bodily injury (including passenger hazard) and property damage liability to \$50,000; no-fault all perils coverage with \$200 deductible and nil deductible for total loss covered by fire, lightning or theft of the entire vehicle; if a vehicle is stolen, the owner may be reimbursed for transportation expenses up to \$8 a day for up to 30 days; and (2) no-fault personal injury benefits (paid automatically without limiting the insured's right to seek a larger settlement); death benefits to a maximum of \$10,000; funeral expenses to a maximum of \$500; benefits up to \$6,000 for dismemberment, disfigurement or impairment; loss-of-income payment of \$50 a week for total disability and \$25 a week for partial disability, beginning one week after disability; for total disability, payments continue for the period during which the insured remains totally disabled, with no time limit, and for partial disability payments continue up to 104 weeks.

Revenue for the plan comes from two sources—premiums on driver licences and premiums on vehicles. Premiums on driver licences recognize driver responsibility; a driver is allowed to accumulate five demerit points (based on driving infractions) before being assessed an additional driver-insurance premium. Premiums on vehicles are based on such factors as year, make, model, use and rating territory, based on the address of the vehicle owner.

The plan was inaugurated Nov. 1, 1971 for an initial four-month period; thereafter, it will operate concurrently with the 12-month vehicle registration period which is Mar. 1 through the following Feb. 28.

Information regarding any aspect of the insurance program may be obtained from the Manitoba Public Insurance Corporation, 330 Portage Avenue, Winnipeg, Man. R3C 0C4.

**Saskatchewan.**—The Saskatchewan Government Insurance Office, a Crown corporation established by the Saskatchewan Government Insurance Act, 1944, commenced business in May 1945. It deals in all types of insurance other than sickness and life. The aim of the legislation is to provide residents of the province with low-cost insurance designed for their particular needs. Rates are based on loss experience in Saskatchewan only and the surplus is invested, to the extent possible, within the province. Premium income for 1971 amounted to \$17,676,528 and earned surplus to \$355,969. The total amount made available to the Saskatchewan Government Finance Office from 1945 to Dec. 31, 1971 was \$10,005,213. Assets at the latter date were \$50,490,926, of which \$27,100,000

\* Prepared by the provincial authorities concerned.

was invested in bonds and debentures issued by the Province of Saskatchewan and by Saskatchewan schools, municipalities and hospitals. Independent insurance agents, numbering 563, sell government insurance throughout the province.

The Automobile Accident Insurance Act, administered by the Saskatchewan Government Insurance Office on behalf of the provincial government, provides a comprehensive automobile accident insurance plan for the protection of the public in this province. Premiums paid by motorists create a fund from which benefits are paid in the event of death, injuries and damages sustained in automobile accidents. Any surplus over payments is used to increase benefits, reduce premiums, or absorb deficits in periods of high accident frequency. The surplus is not transferable to the general operations of the Saskatchewan Government Insurance Office, nor is any surplus credited to the provincial government. The plan provides for public liability insurance, with an inclusive limit of \$35,000 for bodily injury and property damage, as well as comprehensive and collision coverage subject to a \$200 deductible for private passenger cars. Rates vary from \$5 a year for older farm trucks to \$94 for late-model private passenger cars, and also vary for other types of motor vehicles depending on size and usage. From the inception of the Act in 1946 to Dec. 31, 1971, more than \$208,000,000 was paid in claims.

The Saskatchewan Government Insurance Office, under contract with the Saskatchewan Department of Natural Resources, offers insurance to farmers covering damage to unharvested crops by certain wildlife such as ducks, geese, sandhill cranes, deer, elk, bear and antelope.

Information regarding the operation of the Saskatchewan Government Insurance Office or the Automobile Accident Insurance Act may be obtained from the Office Librarian, Saskatchewan Government Insurance Office, Regina, Sask.

**Alberta.**—Provincial government insurance in Alberta, coming within the purview of the Alberta Insurance Act, relates (1) to the Alberta General Insurance Company, in which the entire business of the fire branch of the Alberta Government Insurance Office was vested by the Legislature on Mar. 31, 1948, and (2) to the Life Insurance Company of Alberta, which was constituted on the same date to take over the life branch of the Alberta Government Insurance Office. Each company is administered by a separate board of directors. The Lieutenant-Governor in Council appoints the members to the respective boards but the charter of the Life Insurance Company of Alberta provides for the election of two policyholder directors. Although both companies are Crown corporations, they are not entitled to the usual immunities of the Crown, since they may sue and be sued in any court of competent jurisdiction.

A variety of agencies in Alberta offer forms of prepaid protection corresponding to insurance but the nature of the enabling legislation governing these plans emphasizes the fact that they do not constitute insurance. Because such exemptions are specifically provided by the insurance laws of the province, reference to these plans is necessary only to make it clear that they do not come within the scope of the Alberta Insurance Act. It should be noted that the Alberta Hail Insurance Act and the Alberta Crop Insurance Act are administered by the Alberta Hail and Crop Insurance Corporation and each contains a clause exempting its operations from the provisions of the Alberta Insurance Act.

Further information on provincial insurance matters may be obtained from the Superintendent of Insurance, Department of the Provincial Secretary, Edmonton, Alta.

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## CHAPTER XXV.—DEFENCE\*

### CONSPECTUS

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*The interpretation of the symbols used in the tables throughout the Year Book will be found on p. vii of this volume.*

### Section 1.—The Department of National Defence

The Department of National Defence was created by the National Defence Act, 1922, which established one civil department of government in place of the previous Departments of Militia and Defence, Naval Service and the Air Board, and now operates under authority of RSC 1970, c. N-4.

The Minister of National Defence is responsible for the control and management of the Canadian Forces, the Defence Research Board and all matters relating to national defence establishments and works for the defence of Canada. He is also responsible for the Canada Emergency Measures Organization and for certain civil emergency powers, duties and functions as outlined in Order in Council P.C. 1965-1041, dated June 8, 1965, as amended. In addition, he is responsible for presenting before the Cabinet matters of major defence policy for which Cabinet direction is required.

The Defence Council meets at regular intervals to provide for the briefing of the Minister, a forum for the exchange of views and policy formulation and the discussion of specific matters requiring the approval, decision or direction of the Minister. The Council consists of the Minister of National Defence as Chairman, the Deputy Minister of National Defence, the Chief of the Defence Staff, the Chairman of the Defence Research Board, the Vice Chief of the Defence Staff, and a Secretary. Other senior officials of the Department may be invited to attend.

In addition, the Department has a Defence Management Committee which at regular meetings deals with items of significance requiring the approval, decision or direction of the Deputy Minister, the Chief of the Defence Staff and/or the Chairman of the Defence Research Board prior to their submission to the Minister of National Defence as required. The Committee consists of the Deputy Minister of National Defence as Chairman, the Chief of the Defence Staff, the Chairman of the Defence Research Board, the Vice Chief of the Defence Staff, and a Secretary. Associate Members are the Associate Deputy Minister(s), the Assistant Deputy Ministers, the Branch Chiefs at CFHQ, the Vice Chairman of the Defence Research Board and the National Co-ordinator, Civil Emergency Measures.

\* Prepared by Information Services, Department of National Defence, Ottawa.



The Deputy Minister is charged with the over-all control and management of the Department of National Defence. Assisting the Deputy Minister are the following principal officers:—

- (1) The Assistant Deputy Minister (Finance) is responsible for the management and control of financial policy and resources, the development of policy guidance to permit systematic planning and programming of defence activities by the Defence Staff, the development of procedures for the planning and control of the defence program and the allocation of resources. He also exercises control of financial matters including accounting and auditing procedures.
- (2) The Assistant Deputy Minister (Manpower) is responsible for the control and management of all policies relating to the total civilian and military work force of the Department. This responsibility includes manpower policy development, manpower control and compensation development, civilian classification and staff relations.
- (3) The Assistant Deputy Minister (Logistics) is responsible for policy concerning the management and control of logistics, including real property. These responsibilities include the review, analysis and approval of programs for acquisition or disposal of materiel, supplies, equipment, building construction and property.
- (4) The Associate Deputy Minister is responsible for the development and administration of departmental policies and procedures that will ensure the availability of elementary and secondary educational facilities of provincial standards, consistent with the Official Languages Act and the language of the home, up to the level equivalent of Ontario grade 13, to children of military personnel serving in Canada and Europe.
- (5) The Judge Advocate General is responsible for the administration of military justice in the Canadian Forces. He is also the legal adviser to the Department, the Canadian Forces and the Defence Research Board.
- (6) The National Co-ordinator—Civil Emergency Measures is responsible for the co-ordination and support of federal measures designed to enable the nation to survive and recover from wartime emergencies and peacetime disasters and to assist provincial, territorial and municipal governments in civil emergency planning matters.
- (7) The Director General of Information Services is responsible for the dissemination of unclassified information on defence matters to the public, the Canadian Forces and civilian staffs of the Department, including the Defence Research Board. He prepares answers to parliamentary questions and also plans and co-ordinates community relations programs.

The Chief of the Defence Staff is responsible for advising the Minister of National Defence on all operational military matters and is charged with the control and administration of the Canadian Forces. The principal officers reporting to him are:—

- (1) The Vice Chief of the Defence Staff is responsible for operational training and readiness of the Canadian Forces and the reserves, tactical development, communications and operational requirements, intelligence, plans and program planning.
- (2) The Chief of Personnel is responsible for the Canadian Forces personnel in the Department of National Defence, including recruiting, individual and basic training and career administration and for the provision of such services as medical, dental and religious welfare. He is also responsible for the operational aspects of civilian personnel.
- (3) The Chief of Technical Services has three major responsibilities—Logistics, which is the procurement, storing, maintenance and distribution of materiel; Engineering, which is design development, test evaluation and inspection of materiel; and Construction Engineering, which is the acquisition, construction and maintenance of defence establishments and property.
- (4) The Comptroller General is primarily responsible for co-ordinating the financial aspects of the Canadian Forces, which include the preparation of estimates, the control of expenditures and the control of the allocation of financial and manpower resources. He is also responsible for management improvement and management engineering.

The Chairman of the Defence Research Board is responsible for carrying out those duties in connection with research relating to the defence of Canada and developments in materiel which the Minister may assign, and for advising the Minister on all matters relating to scientific, technical and other research and development that, in his opinion, may affect national defence. He is assisted by a Vice Chairman and the following principal officers: (1) the Deputy Chairman (Scientific) is responsible for advising the Chairman on the development of defence science policy, program planning and review and military liaison; and (2) the Deputy Chairman (Operations) is responsible for ensuring that the finances, personnel and other resources of the Defence Research Board are available and are employed to their maximum and in accordance with agreed program priorities.



Defence Construction (1951) Limited (DCL) was established May 10, 1951 under authority of the Defence Production Act. It is a Crown company incorporated under the Canada Corporations Act. By P.C. 1965-725 dated Apr. 22, 1965, the duties, powers and functions in respect to the construction of defence projects were transferred from the Minister of Defence Production to the Minister of National Defence. Although DCL is an agency corporation reporting to the Minister of National Defence, it is not part of the organizational structure of the Department.

The Minister of National Defence is responsible for administering the following laws which relate to the Department of National Defence: National Defence Act (RSC 1970, c. N-4), Defence Services Pension Continuation Act (RSC 1970, c. D-3), Canadian Forces Superannuation Act (RSC 1970, c. C-9) and Visiting Forces Act (RSC 1970, c. V-6).

### **Liaison in Other Countries**

The Chief of Defence Staff, who is the Canadian Military Representative to the North Atlantic Treaty Organization, is responsible for advice on all NATO military matters and acts as a military adviser to the Government and to Canadian delegations to NATO.\* For purposes of liaison and the furtherance of international co-operation in defence, Canada also maintains: (1) the Canadian Defence Liaison Staff London, representing the Canadian Armed Forces and the Defence Research Board in Britain, the Commander of which is the principal military adviser to the Canadian High Commission in London; (2) the Canadian Defence Liaison Staff Washington, representing the Canadian Armed Forces and the Defence Research Board in the United States, the Commander of which is the principal military adviser to the Canadian Ambassador in Washington, and is the Canadian National Liaison Representative to the Supreme Commander, Allied Command Atlantic (SACLANT) Headquarters; two logistic liaison units are also located in the United States; (3) in Brussels, a Canadian member of the NATO Military Committee in Permanent Session, a Military Adviser to the Canadian Permanent Representative to the North Atlantic Council and also a Canadian National Military Representative to SHAPE; and (4) Canadian Forces Attachés in various countries throughout the world. In addition, a number of defence matters of concern to both Canada and the United States are considered by the Permanent Joint Board on Defence, which provides advice on such matters to the respective governments.

## **Section 2.—The Command Structure of the Canadian Forces**

The Canadian Forces are organized on a functional basis to reflect the major commitments assigned by the Government. Under this concept, all Forces devoted to a primary mission are grouped under a single commander who is assigned sufficient resources to discharge his responsibilities. Specifically, the Canadian Forces are formed into a Canadian Forces Headquarters and seven major Commands reporting to the Chief of the Defence Staff. Canadian Forces Headquarters, in addition to its headquarters function, is responsible for the logistic support of the Forces and, for this purpose, retains operational command of major logistic units. The roles of the Commands are:—

### **MOBILE COMMAND**

The role of Mobile Command is: to provide military units suitably trained and equipped, including tactical air support, for the protection of Canadian territory; to maintain operational readiness of combat formations in Canada required for support of overseas commitments; to support United Nations or other peace-keeping/peace-restoring operations.

The Forces assigned include: three air portable combat groups in Canada; the Canadian Airborne Regiment; the United Nations Force in Cyprus; two tactical fighter squadrons; four tactical helicopter squadrons and one helicopter operational training squadron; one transport helicopter squadron; and one combat training centre.

The Militia and the Air Reserve components are also controlled and administered by Mobile Command.

\* Canada's contributions to NATO are outlined on p. 1279.

### MARITIME COMMAND

All Canadian Maritime Forces, both sea and air, are under the command of the Commander, Maritime Command whose Headquarters is in Halifax. The Deputy Commander is the Commander, Maritime Forces Pacific with Headquarters in Esquimalt. The role of Maritime Command is to defend Canadian interests from assault by sea and to support measures to protect Canadian sovereignty. Support is provided to NATO by assisting in conducting anti-submarine warfare in the Allied Command, Atlantic. The Commander Maritime Command is the NATO Commander of the Canadian Atlantic Sub-Area of the Western Atlantic Command, under the Supreme Commander, Allied Command Atlantic (SACLANT). Additional roles are to provide sea lift required by Mobile Command, and to conduct search and rescue operations within the Atlantic and Pacific Search and Rescue Areas (roughly, the Atlantic Provinces and British Columbia).

The Naval Reserve component is controlled and administered by Maritime Command.

The resources assigned to Maritime Command include destroyers, operational support ships, submarines and aircraft for short- and long-range patrol, as well as training and communications facilities within the Command.

### AIR DEFENCE COMMAND

Air Defence Command participates with the United States in the air defence of North America, through NORAD. It has command of three interceptor squadrons, two SAM squadrons, one SAGE control centre, two BUIC centres and two transcontinental radar lines. Operational control of NORAD assigned forces is exercised by HQ NORAD.

### AIR TRANSPORT COMMAND

The role of Air Transport Command is to provide air transport to Canadian Forces everywhere, and to conduct search and rescue operations in the Eastern Search and Rescue Area (roughly Ontario and Quebec). It has three squadrons operating medium- and long-range cargo- and troop-carrying aircraft as well as four transport and rescue squadrons.

### TRAINING COMMAND

The role of Training Command is to provide individual training for the Canadian Forces and to conduct search and rescue operations within the Western Search and Rescue Area (roughly, Manitoba, Saskatchewan and Alberta). All former training units of the RCN, the Canadian Army and the RCAF where individual training is carried out have been placed under functional control of Training Command. The Canadian Military Colleges (Royal Military College, Royal Roads and Collège militaire royal de Saint-Jean), the Staff Colleges and National Defence College are under the direct control of Canadian Forces Headquarters (see pp. 1281-1283). Land/air warfare operational training and basic parachutist training are the responsibility of Mobile Command; basic fixed-wing and helicopter pilot training are a Training Command responsibility.

### THE CANADIAN FORCES COMMUNICATIONS COMMAND (CFCC)

The role of the CFCC is to provide fixed communications networks for the Canadian Forces and to provide a national communications system for survival operations (civil defence). To carry out this role, CFCC commands all fixed communications installations within Canada.

### CANADIAN FORCES EUROPE

The Canadian Forces allocated to support NATO in Europe are part of Canadian Forces Europe. The land element is 4 Canadian Mechanized Battle Group operationally responsible to the Central Army Group. The air element, 1 Canadian Air Group, consisting of three CF-104 Starfighter squadrons, is operationally assigned to 4 Allied Tactical Air Force. These elements are located in the Lahr area of Germany and are administratively supported by CFB Europe at Lahr.

## Administration of Military Bases in Canada

Staffs and services required below Command Headquarters level to administer and support units based in a particular locality have been organized on Canadian Forces bases. The primary role of each base is to provide base-level administration and supporting services to those units located on or near the base. Each base has been allocated to a functional Commander, to whom the base Commander reports.

## Function/Regional Organization

Functional Commanders have been assigned a regional as well as a functional responsibility for such actions as representation to provincial governments, aid of the Civil Power, emergency and survival operations, and administration of cadets, as well as regional support services for all units in the region.

Canada has been divided into five regions which have been assigned to functional Commanders as follows: Atlantic (Newfoundland, Nova Scotia, Prince Edward Island, New Brunswick)—Maritime Command; Eastern (Quebec)—Mobile Command; Central (Ontario)—Air Transport Command; Prairie (Manitoba, Saskatchewan, Alberta)—Training Command; Pacific (British Columbia)—Maritime Forces Pacific.

### Other Command Elements

Northern Region Headquarters located at Yellowknife, N.W.T., provides representation to the Governments of the Yukon Territory and the Northwest Territories and exercises a co-ordinating function for all military activities in that region of Canada.

The Canadian Defence Education Establishment controls and administers the staff colleges and military colleges for CFHQ and co-ordinates officer training and development for the Canadian Forces.

## Section 3.—Operations

### Maritime Forces

**The Fleet.**—As of September 1971, the following vessels were in service: 20 Destroyer Escorts/Destroyer Escorts Helicopter Equipped (two of which are undergoing major modernization), three Operational Support Ships; three Oberon Class Submarines; one Tench Class Submarine; six Bay Class Training Vessels; four Gate Vessels (employed as training vessels); one Experimental Hydrofoil; and two Escort Repair Vessels (retained in service as alongside work-shops and temporary accommodation vessels). Four Iroquois Class Helicopter Destroyers under construction are expected to join the Fleet in 1972 and 1973.

**Operations in 1971.**—Maritime Forces participated in four NATO exercises carried out in the North Atlantic and, in addition, one destroyer was assigned to the NATO Standing Naval Force Atlantic for a period of three months. Combined exercises with United States Forces were conducted on both the Pacific and Atlantic Coasts and training was conducted in the Bermuda and San Juan areas in order to maintain individual ships at an operational standard. Between these exercises, ships made goodwill visits to the United States, Britain, the Netherlands, Belgium, France, Portugal, Mexico, Columbia and Venezuela.

Four land-based maritime air squadrons were contributed in 1971 to the Maritime Defence of North America; three of these based on the East Coast and one based on the West Coast are equipped with *Argus* aircraft. A continuous program of aircraft modernization and re-equipping with improved anti-submarine devices was conducted throughout the year. The East and West Coast squadrons participated in a number of national, international and NATO anti-submarine exercises, and maintained daily patrols and surveillance of ocean areas adjacent to the Canadian coastlines. A shore-based squadron of CS2F-3 (*Tracker*) aircraft was also operational in 1971 in the surveillance role. Up to nine CHSS-2 (*Sea King*) helicopters are borne on Destroyer Escorts (DDH ships) and assist in carrying out long-range ASW surveillance at sea.

### Air Forces

**Operations in 1971.**—The Canadian Forces contribution to the air defence of North America during the year consisted of three CF-101B interceptor squadrons, two *Bomarc* surface-to-air missile squadrons and 28 radar sites. These forces, together with the Distant Early Warning Line (DEW), operated under the operational control of North American Air Defence Command (NORAD).





*Princess Patricia's Canadian Light Infantry in winter training at Suffield, Alta.*

In late 1971, the three CF-104 squadrons which comprise No. 1 Canadian Air Group, Canada's NATO air contribution to Europe, terminated the nuclear role and undertook the conventional role of support of Allied Forces in Central Europe. Mobile Command's two CF-5 squadrons will be expanded in 1972 to enable them to reinforce NATO's North Flank, as stated in the White Paper, and the squadrons will train in mid-air refuelling operations with the CC-137 Boeing Aircraft of Air Transport Command to reduce reaction times to the minimum. The CF-5s continue air support operations in co-operation with land forces which are engaged in Defence of Canada Exercises aimed at improving the CF's capability of operating effectively in the Canadian Arctic. During 1971, the mobility of the Land Forces was enhanced by the creation of 4 Tactical Helicopter Squadrons. These squadrons are equipped with the twin-engine CH-135 for tactical troop lift and the COH-58A for light liaison and reconnaissance tasks.

Air Transport Command (ATC) continued in 1971 to provide support to CFB Europe using long-range *Boeing 707* and *Hercules* aircraft. A *Caribou* maintained in India/Pakistan in support of UNMOGIP was replaced by a *Twin Otter* at mid-year. In Canada, ATC airlifted defence personnel and cargo from coast to coast and into the Arctic regions. *Hercules* aircraft were employed for paratroop training of the land forces. Search and rescue services were provided in the Canadian areas of responsibility. Throughout the year, the Canadian Forces processed some 2,800 separate search and rescue incidents and flew more than 8,400 hours on this task.

### Land Forces

**Operations in 1971.**—In fulfilment of obligations under NATO, Canada continued to provide ground forces for the defence of Western Europe. The 4th Canadian Mechanized Battle Group, the major units of which are the Royal Canadian Dragoons, 1st



Regiment Royal Canadian Horse Artillery, 1st Battalion Royal 22<sup>e</sup> Regiment and 3rd Canadian Mechanized Commando, constituted the Land Forces contribution to NATO in the Federal Republic of Germany. The Headquarters of the Battle Group is at Lahr and the married quarters are located in the vicinity of Lahr and Baden-Soellingen. Canada has also earmarked from within its Canadian-based Forces a combat group for external reinforcement of the NATO North Flank. Included within this formation is a battalion group held at a high state of readiness for operations on the North Flank under command of the Commander, Allied Command Europe Mobile Force (Land Component) (AMF(L)).

The Canadian Forces continued to provide support for United Nations operations. Canadian participation in the UN Forces in Cyprus included provision of a reduced Infantry Battalion, a Canadian Contingent Headquarters and a Canadian element in the UN headquarters—a total of 580 officers and men. There were also 38 officers and men employed on other UN missions in the Middle East, Kashmir and Korea. In addition, a specially trained and equipped force equivalent to an infantry battalion group in size is maintained in Canada to provide a force for service in support of the UN on short notice to any part of the world.

In addition to its UN commitments, Canada had 21 officers and men participating in the International Commissions for Supervision and Control in Viet-Nam, Cambodia and Laos. The Commission in Cambodia adjourned *sine die* on Dec. 31, 1969 and the Delegation subsequently withdrew. In 1971, 19 Canadian servicemen were in Viet-Nam and two in Laos.

In accordance with obligations embodied in the National Defence Act and departmental policy, the Canadian Forces in 1971 provided aid and assistance in response to requests from various civil authorities. Major undertakings were: (1) aid to the Province of Quebec in maintaining law and order in the province during the period Oct. 14, 1970 to Jan. 4, 1971; (2) assistance to the Department of the Solicitor General in providing personal protection to a group of personages in the Hull-Ottawa area during the period Oct. 12, 1970 to Jan. 4, 1971; (3) assistance to the cities of Moncton, London and Montreal in overcoming difficulties caused by severe snow storms during the winter of 1970-71; (4) assistance to the Department of the Solicitor General in restoring order during the Kingston Penitentiary riot in April 1971; (5) assistance to the Province of Saskatchewan in flood control operations in Regina and Lumsden during April 1971; (6) assistance to the Province of Saskatchewan in airlifting approximately 150,000 lb. of chemical insecticide from the United States during the Bertha Army Worm blight in August 1971; (7) across Canada from 24 locations, Canadian Forces Explosive Ordnance Disposal Teams responded to an average of 52 requests a month from police agencies to assist in rendering safe a great variety of explosives and dangerous chemicals; (8) relief flights in aid of Pakistan refugees using two CC-130 *Hercules* and 11 CC-137 *Boeing* flights carried cargoes consisting mainly of materials for shelters (650,000 lb.) but including other equipment such as ambulances, blankets, clothing and foodstuffs; and (9) engineers from 3 Field Squadron, Chilliwack, B.C. and 1 Construction Engineering Unit, Winnipeg, Man., under the auspices of the Department of Indian Affairs and Northern Development, constructed a 360-foot bridge over the Ogilvy River in the Arctic, beginning on Apr. 3 and completing it on Sept. 3, 1971.

Northern Forces Headquarters, formed in May 1970, has the main role of co-ordinating Canada's increasing military activities north of the 60th parallel of latitude. The Headquarters will also co-ordinate Armed Forces northern activities with other federal agencies, including the Governments of the Yukon Territory and the Northwest Territories.

During the summer of 1971, the Department of National Defence provided assistance to the Federal Government summer programs for students. Approximately 12,500 students between the ages of 16 and 24 were employed in five programs for periods of two to 12 weeks. The types of employment offered were: Program 1—research, engineering, physical education, clerical and maintenance duties at Canadian Forces Bases across



*A 415 Squadron Argus aircraft on surveillance over Cape Dawson, N.W.T.*

Canada for 1,750 students; Program 2—cadet training for 1,000 students, an addition to the existing cadet programs; Program 3—range clearance at Canadian Forces Bases, Gagetown, Valcartier, Petawawa and Wainwright for 1,000 students; Program 4—citizenship and leadership training for 2,000 students; and Program 5—reserve force training for 6,000 students at local units and training centres. In addition, the Department of National Defence provided assistance to the National Museum of Man by establishing and maintaining the base camp for its Project BIG DIG, the over-all aim of which was to investigate the human and natural history of the north shore of Lake Superior by conducting archaeological diggings in selected areas surrounding the town of Wawa, Ont.

### **Section 4.—Training**

All recruit and most basic and advanced trades training in support of the Canadian Armed Forces takes place at various schools under the supervision of Training Command. Maritime Command and Mobile Command maintain functional control of trades and operational training for their personnel.

The Combat Arms School of the Combat Training Centre, CFB Gagetown, N.B., conducts training for officers and men of the armoured, artillery and infantry units of the Regular and Reserve Forces, ranging from basic trades to advanced courses. Similar courses for French-speaking personnel are given at the Combat Arms School Detachment, CFB Valcartier, Que. Training for field engineers and construction trades is given at CFB Chilliwack, B.C.

Recruit training takes place at CFB Cornwallis, N.S., for English-speaking recruits and at CFB St. Jean, Que., for French-speaking recruits. St. Jean is also the site of the English-French Language School although the official languages are taught on a limited scale at selected Canadian Forces Bases, and in civilian centres under the auspices of the

Public Service Commission. Training in other languages is given at the Canadian Forces Foreign Language School in Vanier City, Ont.

Support trades training is conducted at the School of Administration and Logistics, CFB Borden, Ont., and technical trades training is conducted at a number of bases across Canada. Two Fleet Schools, one at CFB Esquimalt, B.C., and the other at CFB Halifax, N.S., provide basic and advanced Maritime trades training and have training facilities for the operational warships on the East and West Coasts.

Basic technical training in French is given at CFB St. Jean, Que. and an expanding trades-training program in that language is given at most of the above-mentioned bases and schools.

Flying training to "wings" standard is based in the Prairie Provinces—pilot selection and basic helicopter flying training at Portage la Prairie, Man., basic fixed-wing flying training at Moose Jaw, Sask., and advanced flying training at Cold Lake, Alta. Navigator and observer training is given at CFB Winnipeg, Man. The operational commands maintain operational flying training units, and technical training units to give equipment-oriented training to tradesmen in these Commands.

### **Canadian Military Colleges**

The three Canadian Military Colleges are the Royal Military College of Canada, founded at Kingston, Ont., in 1876; Royal Roads Military College, established in 1941 near Victoria, B.C.; and Collège militaire royal de Saint-Jean, established at St. Jean, Que., primarily to meet the needs of French-speaking cadets. The Royal Military College and the Royal Roads Military College were constituted as the Canadian Services Colleges in 1948 and Collège militaire royal de Saint-Jean was opened in 1952. In 1959, the Ontario Legislature granted the Royal Military College a charter empowering it to grant degrees. In 1967, the Canadian Services Colleges were re-designated as the Canadian Military Colleges, in keeping with unification of the Canadian Forces.

The role of the Colleges is to educate and train officer cadets and commissioned officers for a career of effective service in the Canadian Forces. Courses of instruction are designed to develop character and to provide a balanced liberal, scientific and military education leading to degrees in arts, science and engineering. The Royal Military College of Canada accepts senior matriculants and offers a four-year course. Royal Roads Military College accepts senior matriculants who, on successful completion of the second year, go to the Royal Military College of Canada for their third and fourth years. Collège militaire royal de Saint-Jean accepts junior and senior matriculants to pursue a five- or four-year program; the final two years in some disciplines are completed at the Royal Military College.

To be eligible for admission to a Canadian Military College, candidates must be single, Canadian citizens and physically fit. Candidates must have reached their 16th but not their 21st birthday on the first day of January preceding entrance, with the exception of junior matriculation candidates for Collège militaire royal de Saint-Jean who must have reached their 16th but not their 20th birthday on the first day of January preceding entrance. On entry into one of the Canadian Military Colleges, applicants are enrolled as Regular Force Officer Cadets in the Canadian Forces. Costs of tuition, uniforms, books, instruments and other fees are borne by the Department of National Defence. Officer cadets receive a salary of \$200 a month, increasing to \$215 after three years of service, and are charged \$85 a month for board and lodging. On successfully completing their academic and military training, officer cadets are granted permanent commissions in the Regular Force.



Most officer cadets entering the Canadian Military Colleges enrol under the Regular Officer Training Plan. Provision is also made for the entry of a number of Dominion cadets. These are sons of persons who were killed, or died, or are severely incapacitated as a result of service in a component of the Canadian Forces or the Canadian Merchant Marine during hostilities. Dominion cadets enter the Reserve Force and receive free tuition during the first academic year at a Canadian Military College. A limited number of Reserve cadets who pay tuition and other fees during the duration of the course may also be admitted.

During the 1970-71 academic year, 1,178 officer cadets were enrolled at the Canadian Military Colleges, 545 of them at the Royal Military College, 218 at Royal Roads Military College and 415 at Collège militaire royal de Saint-Jean.

### Staff and Defence Colleges

The Canadian Land Forces Command and Staff College at Kingston, Ont., gives a 44-week course for the training of Captains and Majors for command and staff appointments. Although most of the student body is composed of officers of the land element of the Canadian Armed Forces, officers from the sea and air elements and from the armies of other Commonwealth and NATO countries also attend. Instruction involves study of reference material, syndicate discussions, lectures and tutorial indoor and outdoor exercises. In addition to military subjects, the curriculum includes studies in the fields of military technology and operational research; leadership, command and management; national and international affairs; communication skills; and geopolitics. The syllabus is enhanced by a variety of expert military and civilian guest lecturers and by visits to Canadian and United States military and civilian establishments.

The Canadian Forces College in Toronto consists of three institutions for the staff training of officers. (1) At the *Canadian Forces Staff College*, Majors and Lieutenant-Colonels from sea, land and air elements of the Canadian Armed Forces take a 44-week course to prepare them for assumption of higher rank and greater responsibility. The course includes the study of strategic and military problems; national and international affairs; military technology and operational research; geopolitics; management; and communications skills. (2) At the *Canadian Forces Staff School*, all classifications of officers in the rank of Captain take a 10-week course to prepare them to perform staff functions of a general nature that are appropriate to their rank and to provide the foundation for their subsequent professional development. The course includes the study of management and communications skills, national and international affairs, Canada's national defence structure, staff procedures, personnel support services, government and sociology. (3) At the *Canadian Forces Extension School*, selected military and academic courses of study by correspondence are offered to all officers of the Canadian Armed Forces.

The National Defence College at Kingston, the senior college of the Canadian Armed Forces, provides a 47-week course to prepare senior military officers in the ranks of Lieutenant-Colonel and Colonel, and senior officers from other government departments and industry, for appointments to positions of higher responsibility, by enabling them to study together those aspects of national and international affairs which determine or significantly affect Canada's policies. Lecturers are chosen from the leaders in various fields in Canada and other countries. In addition, field studies to certain parts of Canada, the United States, Europe, Asia, Africa, Australia and Latin America familiarize students with conditions and influences in their own country and in other countries.



## Section 5.—Reserves and Cadets

### The Naval Reserve

Recruiting and training of officers and men of the Naval Reserve is conducted mainly through 16 Naval Reserve Units across Canada under the Commander, Maritime Command whose Headquarters is located at Halifax, N.S. Naval Reserve Units are established at the following centres:—

St. John's, Nfld., HMCS *Cabot*  
 Halifax, N.S., HMCS *Scotian*  
 Saint John, N.B., HMCS *Brunswick*  
 Quebec, Que., HMCS *Montcalm*  
 Montreal, Que., HMCS *Donnacona*  
 Toronto, Ont., HMCS *York*  
 Ottawa, Ont., HMCS *Carleton*  
 Kingston, Ont., HMCS *Cataraqui*

Hamilton, Ont., HMCS *Star*  
 Windsor, Ont., HMCS *Hunter*  
 Thunder Bay, Ont., HMCS *Griffon*  
 Winnipeg, Man., HMCS *Chippawa*  
 Saskatoon, Sask., HMCS *Unicorn*  
 Calgary, Alta., HMCS *Tecumseh*  
 Vancouver, B.C., HMCS *Discovery*  
 Esquimalt, B.C., HMCS *Malahat*

Naval Reserve Units, commanded by Reserve Officers, provide both basic and specialized training for officers and men of the Naval Reserve. Additional training is also conducted in Regular Force schools across the country and in HMC Ships.

### The Militia

Following the review undertaken by the Government in 1969 of Canada's defence and foreign policy, the basic priorities of the defence policy were re-defined, with greater emphasis placed on the protection of Canada's national sovereignty. These decisions, coupled with the need for financial restraints, resulted in changes to the organization and role of the Militia within the general context of the re-defined roles of Canada's Armed Forces as a whole.

The Militia has been reduced to a strength of approximately 19,000 which has been achieved by reductions in unit establishments and in the number of service units. Little change was made in the number of armoured, artillery and infantry units because it is for this type of militiaman that the greatest need is foreseen. Command and control is exercised through five Militia Area Headquarters and 21 Militia District Headquarters.

The traditional role of the Militia to support the Regular Force has been re-emphasized. Specifically, the Militia will now: (1) provide trained individuals for augmentation and reinforcement of the Regular Force; (2) provide trained sub-units to support the field force for the defence of Canada and the maintenance of internal security; (3) provide trained personnel for the augmentation of the civil emergency operations organization; and (4) form the base on which the Regular Force could be expanded in the event of an emergency.

To ensure a closer relationship between the Militia and the Regular Force and to facilitate a training program more closely related to its role, the Militia, less 12 communication units, has been placed under direct command of the Commander, Mobile Command. The 12 communication units, whose role is to augment the communication system, are under the command of Canadian Forces Communication Command.

### Air Reserve

The active sub-components of the Primary Reserve of the air element are designated the Air Reserve, which is made up of six Reserve Flying Squadrons and four Air Reserve Regional Headquarters. Montreal and Toronto each has two Flying Squadrons and one Air Reserve Regional Headquarters; Winnipeg and Edmonton each has a single Flying Squadron and an Air Reserve Regional Headquarters. The Air Reserve Regional Headquarters is required to provide the necessary administrative support to the Flying Squadron to include all phases from recruiting to release procedures, except for operational control and flying training. All Air Reserve Squadrons are responsible through 10 Tactical Air Group to the Commander, Mobile Command. All Flying Squadrons are equipped with

the DHC-3 *Otter*. Their role is light tactical air transport and reconnaissance for ground forces. They can be tasked as: (1) tactical air transport, including logistics support, air evacuation of casualties, communications and liaison; (2) airborne surveillance in support of ground forces in a permissive air environment; (3) aerial photography to provide the ground forces with a limited photographic capability that will supplement the reconnaissance provided by specialized tactical reconnaissance aircraft; (4) aerial, visual, photographic operations; and (5) provision of a reserve of trained pilots who can be incorporated into the Mobile Command Flying Units if required.

### Canadian Armed Forces Cadets

The object of the cadet movement in Canada is to provide the opportunity for young men, aged 13 to 18, to acquire the fundamentals of good citizenship and leadership through a combination of training at local cadet units and at summer camps. In keeping with the unified concept of the Canadian Armed Forces, the Sea, Army and Air Cadet organizations have integrated the command and control functions of their respective organizations and adopted a common aim: "To develop in youth the attributes of good citizenship and leadership; to promote physical fitness; and to stimulate their interest in the Sea, Land and Air elements of the Canadian Forces". While cadet officers remain environmental, they are commissioned in the Cadet Instructor List which is a sub-component of the Canadian Forces Reserve.

**Royal Canadian Sea Cadets.**—Royal Canadian Sea Cadets, sponsored by the Navy League of Canada in partnership with the Canadian Forces, comprise 183 corps which are supervised jointly by the local branches of the League and by Regular Force officers. Instruction at corps level is carried out by Cadet Instructor List (Sea). Two training establishments, *Cornwallis* on the East Coast and *Quadra* on the West Coast, accommodate officers and 2,700 cadets for two-week training periods in the summer. Under an exchange program, 100 Canadian sea cadets exchange visits with an equal number of United States sea cadets on the East and West Coasts, and 10 exchange with European sea cadets. In addition, 400 selected cadets receive a six-week training course at Canadian Forces bases. Sea experience is provided throughout the year in HMC Ships and Ministry of Transport Ships. As of Jan. 31, 1971, the strength of the corps was 1,016 officers and 10,723 cadets.

**Royal Canadian Army Cadets.**—Supervision of the organization and training of Army cadets is the responsibility of the Regular Force. The training and administration is the responsibility of the officers of the Cadet Instructor List (Army), a sub-component of the Canadian Forces Reserves, and civilian instructors. As of Jan. 31, 1971, officers and civilian instructors numbered 2,603 and there were 38,883 cadets enrolled in 420 corps.

The International Exchange Visits Program gave Army cadets an opportunity to visit and train abroad; 94 cadets went to Jamaica, Barbados, Trinidad and Tobago, Guyana, and Grenada; 16 went to the National Rifle Association matches at Bisley, England, and two officers and 12 cadets attended the Outward Bound Course at Towyn, Wales. Cadets from the Caribbean countries trained at Camp Gagetown, N.B., Valcartier, Que., and Ipperwash Cadet Camp, Ont. One officer and 12 cadets from Britain trained at the National Army Cadet Camp at Banff, Alta., and 16 British cadets participated in the Dominion of Canada Rifle Association matches at the Connaught Ranges near Ottawa. Seven cadets from Canada attended the U.S. Ranger course at Hawk Mountain, Pa., and a similar number of U.S. Rangers attended Banff National Cadet Camp.

In 1971, 4,657 cadets attended six-week trades and specialist courses at Camp Gagetown, in New Brunswick, CFB Valcartier in Quebec, CFB Borden, CFB London and Ipperwash Camp in Ontario, CFB Shilo in Manitoba, CFB Calgary in Alberta and CFB Esquimalt and Vernon in British Columbia; 3,866 cadets attended two-week cadet leader and special camps at Camp Gagetown, Valcartier, Montreal, Ipperwash, Shilo, Churchill and Vernon; 288 master cadets attended the National Army Cadet Camp at Banff for six weeks of training which included mountain marches, rock-climbing and survival.

**Royal Canadian Air Cadets.**—The Air Cadet movement operates on the basis of a partnership between the Air Cadet League of Canada, a voluntary civilian organization, and the Canadian Armed Forces. The League sponsors and administers air cadet activities while the Canadian Armed Forces provide training personnel, syllabi and equipment and also assist the League in organization and administration. The objectives of training are to encourage air cadets to develop the attributes of good citizenship, to stimulate in them an interest in aviation and space technology, and to help them develop a high standard of physical fitness, mental alertness and discipline. The authorized ceiling of cadet enrolment is 30,000; the strength at Jan. 31, 1971, was 26,269 cadets attached to 371 squadrons across Canada.

During the summer of 1971, camps were conducted at CFB Greenwood, N.S., Bagotville, Que., Trenton, Ont., and Penhold, Alta., attended by about 7,500 cadets. A six-week senior leaders' course for 240 cadets, a technical training course for 100 cadets, and a six-week physical training and recreational course for 75 cadets were held at CFB Borden, Ont. A bush-familiarization course, teaching the techniques of survival and ground search, was conducted at Nain, Alta., for 54 cadets. Under the International Exchange Visits Program, 62 air cadets were exchanged with Austria, Belgium, Britain, France, Israel, the Netherlands, Norway, Spain, Sweden, Switzerland, the United States and the Federal Republic of Germany.

About 250 senior air cadets receive flying training annually at flying clubs through Canadian Armed Forces sponsored scholarships; additional scholarships were awarded by the Air Cadet League and other organizations in 1971.

## Section 6.—The Defence Research Board

The Defence Research Board is the agency in the Department of National Defence responsible for scientific research. It was created in 1947 by an amendment to the National Defence Act and consists of a full-time chairman and a vice-chairman, five ex officio members, and a varying number of members selected from universities and industry appointed by the Governor in Council. The ex officio members are the Deputy Minister of National Defence, the President of the National Research Council, the Chief of Defence Staff, the Vice Chief of Defence Staff and the Chief of Technical Services. The Chairman is the chief executive officer of the Board's research organization. He is a member of the Defence Council and the Defence Management Committee, the senior policy and management bodies of the Department, while the Vice Chairman is an associate member of the Defence Management Committee.

The research organization consists of seven research establishments which carry out an intramural program of research specifically oriented toward military needs. The Board also conducts an extramural research program through grants in aid of research to universities. These investigations are usually basic in nature and seek to provide new knowledge in fields from which important military developments are likely to arise. Support is also provided to industry on a cost-sharing basis with the object of promoting and strengthening the applied research.

There are effective arrangements with Canada's allies to ensure mutual use of defence scientific knowledge, resources and facilities. The Board represents Canada on a number of specialist committees through which NATO's scientific endeavours are processed and co-ordinated. The Board maintains liaison offices in Washington, London and Paris.

Research on maritime surveillance problems is carried out at the Defence Research Establishment Atlantic and at the Defence Research Establishment Pacific, the latter also being responsible for related research in the Arctic. Research and development of weapons and defence against various weapons is undertaken in co-operation with the Armed Forces at several establishments, the largest of which is the Defence Research Establishment



Valcartier. Its principal activities include surveillance, night-vision aids and detection devices, lasers, propellants and explosives, aerospace research, weapons systems analysis and studies on armament.

Defence communications studies are carried out by the Communications Research Centre (Department of Communications) on behalf of the Defence Research Board. Research on the defensive aspects of chemical, biological and atomic weapons is carried out at two Defence Research establishments—the Defence Research Establishment Suffield at Ralston, Alta., and the Defence Research Establishment Ottawa; the latter is also responsible for the major northern activities and for power sources.

The Defence and Civil Institute of Environmental Medicine is an amalgamation of the Board's former Defence Research Establishment Toronto and the Canadian Forces Institute of Environmental Medicine, the research and associated facilities being available also to other Federal Government departments and agencies. Its defence program concerns the efficient performance of man in the military role and includes behavioural and bioscience investigations related to all environments. It advises on the physiological and psychological fitness of aircraft crews and on a variety of training projects. Highly specialized assistance in the investigation of accidents in all environments is available both for military and for civil agencies, with particular emphasis on human factors and environmental situations with serious hazard potentials. The Defence Research Analysis Establishment provides scientific evaluation and analysis of present and future weapons systems, tactical doctrine and other aspects of military operations, and studies broad strategic problems.

Thus, the Board continues to support the fields of research that are of foremost interest to the Canadian Armed Forces and the program is under continuing review to ensure that cognizance is taken of all changes in emphasis in defence requirements. Close liaison is maintained between the Defence Research Board and other appropriate departments of government to ensure that research and development activities are closely integrated with production.

## Section 7.—Canada Emergency Measures Organization

The Canada Emergency Measures Organization was brought into being to initiate, stimulate and co-ordinate the civil aspects of defence policy delegated to federal departments and agencies to meet the threat of nuclear war on Canada. It is also responsible for providing support and guidance to provincial and municipal authorities in the development of their emergency capabilities.

Plans exist at all levels of government for the provision of emergency arrangements for health services, welfare services, employment of manpower and national resources and for practically every area of endeavour that is required to respond in an emergency situation.

The 1969 Year Book, at pp. 1201-1203, contains details of the establishment, powers and functions of Canada EMO, together with an outline of provincial government civil emergency responsibilities.

## Section 8.—Defence Construction (1951) Limited

Defence Construction Limited (DCL) was established in 1950 as a Crown company to contract for major military construction and maintenance projects required by the Department of National Defence. The present company was incorporated in 1951 under the authority of the Defence Production Act. In April 1965, the control and supervision of Defence Construction (1951) Limited was transferred from the Minister of Defence Production to the Minister of National Defence. It is a Crown corporation as defined in Part VIII of the Financial Administration Act and listed in Schedule "C" in the Act (see pp. 158-159).



The delineation of responsibility between the Department of National Defence and DCL is as follows. The Department of National Defence, as owner and the design authority, is responsible for providing DCL with complete plans and specifications as well as funds from which contract payments are made; the technical direction and supervision of the work of design consultants as well as procurement of land, when required, is also provided by the Department. DCL is the contracting and construction supervisory agency. Its function is to obtain tenders, to make recommendations regarding awards and to award and administer major construction and maintenance contracts. Upon request from the Department of National Defence, DCL also engages architects and engineers to prepare plans and specifications in accordance with the requirements of the Department. Contracts are entered into between the contractor or consultant and DCL. As an integral part of its contracting role, DCL is responsible for administration of the contract, supervision of the construction work, certification of the contractors' progress claims for payment and certification that the work has been completed in accordance with the contract and handed over to the Department. The Department of Supply and Services is responsible for payment of contract accounts.

In addition to acting as the contracting agency for major construction for the Department of National Defence, DCL provides assistance, when requested, to other Federal Government departments and agencies relative to construction requirements. It also administers defence construction projects in Canada which are financed by the Government of the United States.

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# CHAPTER XXVI.—OFFICIAL SOURCES OF INFORMATION AND MISCELLANEOUS DATA

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## PART I.—OFFICIAL SOURCES OF INFORMATION

### Section 1.—Books About Canada

This basic list of books about Canada, contributed by the National Library, includes a selection of publications grouped alphabetically by author and arranged under the subject classifications of the Arts and the Performing Arts, Biography, Country and People, Economics, Government and Politics, History, Literature, and General Reference Works. The selection represents many aspects of Canadian life, emphasizes the latest editions of books published within the past three years, and includes titles issued in either or both English and French, accompanied by the publisher's address.

It should be noted that, although this list is an annual feature of the Canada Year Book, it is not a cumulative presentation; it is limited to about 460 titles, necessitating the omission of some items that appeared the preceding year to permit the inclusion of others. For additional titles, the reader should consult the lists of books in earlier Canada Year Books or one or more of the bibliographical collections listed under the heading "General Reference Works", particularly the monthly or annual editions of *Canadiana* published by the National Library.

### The Arts and the Performing Arts/Les arts et les arts d'interprétation

- ADAMSON, Jeremy. *The Hart House collection of Canadian paintings*. Toronto, University of Toronto Press, 1969. 120 p.
- BEAULIEU, Claude. *L'architecture contemporaine au Canada français*. Québec, Ministère des affaires culturelles, 1969. 94 p. (Collection art, vie et sciences au Canada français, 10.)
- BOGGS, Jean Sutherland. *The National Gallery of Canada*. Toronto, Oxford University Press, 1971. 136 p.
- CANADIAN ASSOCIATION OF BROADCASTERS. *Domestic music list./Liste de la musique domestique*. Ottawa, Canadian Association of Broadcasters, 1971. 155 p.
- CANADIAN MUSIC COUNCIL. *The Annual Conference*, Montreal, 1969. *Contemporary music and audiences./La musique contemporaine et le public*. Toronto, 1969. 77 p.
- COLLINS, Peter. *Architectural judgement*. Montreal, McGill-Queen's University Press, 1971. 220 p.
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- VIATTE, Auguste, comp. *Anthologie littéraire de l'Amérique francophone; littérature canadienne, louisianaise, haïtienne...* Sherbrooke, CELEF, 1971. 519 p.
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- WARE, Randall, ed. *The book cellar anthology*. Toronto, Martin, 1971. 96 p.
- WILSON, M. T. *E. J. Pratt*. Toronto, McClelland and Stewart, 1969. 64 p. (Canadian writers, 2)
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- WOODCOCK, George. *Odysseus ever returning; essays on Canadian writers and writing*. Toronto, McClelland and Stewart, 1970. 158 p.
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- The Atlantic year book*. Fredericton, N.B., Published for Atlantic Advocate by Brunswick Press. Annuel.
- BEAULIEU, André. *Répertoire des publications gouvernementales du Québec de 1867-1964*. Par André BEAULIEU et Jean HAMELIN. Québec, Imprimeur de la Reine, 1968. 554 p. Supplément 1965-1968. Par André BEAULIEU, Jean HAMELIN et Gaston BERNIER. Québec, Éditeur officiel du Québec, 1970. 388 p.
- CANADA. Information Canada. *Canadian government publications catalogue./Publications du gouvernement canadien; catalogue*. Ottawa, Information Canada. Annuel/annuel.
- CANADA. Statistics Canada. *Daily Bulletin*. Ottawa, Information Canada.
- CANADA. Statistics Canada. National Income Expenditure Division. *National income and expenditure accounts*. Ottawa, Information Canada. Quarterly.
- CANADA. Statistique Canada. *Le bulletin quotidien*. Ottawa, Information Canada.
- Canada careers directory for diploma graduates./Choisissez votre carrière, pour diplômés des CEGEP*. Montréal, Cornmarket Press. Bilingual/bilingue. Annuel/annuel.
- Canada careers directory for university graduates./Choisissez votre carrière, pour diplômés universitaires*. Montréal, Cornmarket Press. Bilingual/bilingue. Annuel/annuel.
- Canada legal directory for the legal profession, containing the names of judges, lawyers, court officials, etc., throughout Canada*. Toronto, Canada Legal Directory (125 Lower Ave.). Annuel.
- Canada; the official handbook of present conditions and recent progress*. Ottawa, Information Canada. Annuel.
- Canada; revue officielle de la situation actuelle et des progrès récents*. Ottawa, Information Canada. Annuel.
- Canada year book; official statistical annual of the resources, history, institutions and social and economic conditions of Canada*. Ottawa, Information Canada. Annuel.
- Canadian almanac and directory*. Toronto, Copp Clark. Annuel.
- Canadian annual review*. Toronto, University of Toronto Press. (Includes some text in French./Comprend des textes en français.)
- Canadian books in print./Catalogue des livres canadiens en librairie*. Toronto, Canadian Books in Print Committee; distributed by University of Toronto Press. Annuel/annuel.
- Canadian medical directory*. Toronto, Seccombe House. Annuel.
- Canadian news facts*. Toronto. v.1-, Jan. 16, 1967-, published every two weeks.
- Canadian periodical index./Index de périodiques canadiens*. Ottawa, Canadian Library Association. Monthly/mensuel.
- Canadian statistical review*. Ottawa, Information Canada. Monthly with bilingual weekly supplements.
- Canadiana*. Ottawa, Information Canada. Monthly with annual cumulations. (Publications of Canadian interest noted by the National Library.)
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- Liures et auteurs canadiens; panorama de la production littéraire.* Montréal, Éditions Jumonville. Annuel.
- MACDONALD, C. S., comp. *A dictionary of Canadian artists.* Ottawa, Canadian Paperbacks (370 Queen Mary Road, Ottawa 7), 1967-. 3 vols.
- Revue statistique du Canada.* Ottawa, Information Canada. Mensuel avec suppléments hebdomadaires bilingues.
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## Section 2.—Federal Government Information Services

The preparation and distribution of information on activities of the Federal Government is the responsibility of special divisions operated for this purpose in more than three dozen governmental departments and agencies. Because each of these information divisions concerns itself almost entirely with the functions of its respective branches of government, the Cabinet decided in 1970, upon recommendation of a Task Force which conducted a year-long study of the services, to create a new co-ordinating, advisory and resource unit designated as "Information Canada".

Information Canada's role is not to centralize federal information services, but to assist in offering a better performance and to initiate information programs on subjects dealing with nationhood in general and federalism in particular, which go beyond the interests of individual departments. In addition to providing information to the public through exhibits, booklets and other means used in the past, Information Canada has embarked upon the establishment of a network of inquiry centres in the principal centres of Canada where citizens may seek and obtain data on any aspect of Federal Government operations and other matters pertaining to Canadian society as a whole. It has also been assigned the duty of keeping Parliament and Government advised on a continuing basis of the news and comments Canadians are receiving through the news media, of the public's aspirations and complaints and its attitudes toward federal policies and programs as indicated in surveys, pools and other testing methods.

To help Information Canada perform its function, three components attached to other departments of government in the past have been transferred to it. These are the Publishing Division of the Canadian Government Printing Bureau, the Canadian Government Exhibition Commission and the Still Photo Library of the National Film Board. Their staffs comprise more than two thirds of the personnel of the new organization.

The basic assignment the Cabinet has given to Information Canada, as set out by the Prime Minister in a policy statement on information services to Parliament on Feb. 10, 1970, is one of assistance in "bringing government ever closer to the people" and "expanding the dimensions of democratic dialogue in this nation".

Approximately 400 Information Service Officers are engaged in the gathering and dissemination of information relating to operations of the Federal Government. As many more men and women, while not formally classified as such, perform one form of information function or another, either on a full-time basis or in association with other duties.

Among the information services provided by the Government of Canada, those offered by Statistics Canada are of a particular nature. The bureau is the chief source of statistical information on all phases of the Canadian economy supplied to both the general public and various branches of government at all levels. The operations of the bureau are dealt with in greater detail on pp. 1304-1305.

Citizens with specific inquiries concerning Federal Government programs, policies and other aspects of operation should direct these to the information division of the department of government concerned, either at national headquarters in Ottawa or at regional offices where these exist, or they may seek the data desired through the inquiry offices of Information Canada. Inquiries relating to provincial activities may be directed to the provincial government department concerned.



### Section 3.—Sale of Official Publications

Under the provisions of Order in Council PC 1970-559, responsibility was transferred from the Canadian Government Printing Bureau to Information Canada for the sale of official publications of Parliament and the Government of Canada that are issued to the public (with a few exceptions covered by statute), as well as the free distribution of all public documents and papers to persons and institutions (libraries) entitled by statute to receive them.

Information Canada issues a *Daily Checklist of Government Publications* which records—for the information of the public services, libraries, etc.—Federal Government publications immediately upon release. Those authorized by law or regulation to receive free copies of such publications receive the *Daily Checklist* without charge; others desiring the service may purchase an annual subscription to be forwarded daily or in weekly lots as requested.

Information Canada also issues the *Monthly Catalogue of Canadian Government Publications*, a comprehensive listing of official publications, public documents and papers not of a confidential nature published at government expense, and an *Annual Catalogue* listing publications issued during the previous year, as well as sectional catalogues and selected titles bulletins advertising new government publications.

Information Canada is the national sales agent in Canada for publications issued by the United Nations; the United Nations Educational, Scientific and Cultural Organization; the World Health Organization; the Food and Agriculture Organization; the Organization for Economic Co-operation and Development; the International Atomic Energy Agency; the International Civil Aviation Organization; the Council of Europe; the Organization of American States (Pan American Union); the General Agreement on Tariffs and Trade; the New Zealand Government; the International Labor Organization; the World Meteorological Organization; the International Telecommunications Union; and the Assembly of Western European Union.

Publications of the Canadian Government and international organizations listed above may be obtained from Information Canada bookshops located in Halifax, Ottawa, Montreal, Toronto, Winnipeg and Vancouver or by mail from headquarters of Information Canada, 171 Slater Street, Ottawa, K1A 0S9.

### Section 4.—Publication Services of Statistics Canada

Statistics Canada, established by statute in 1918 (as the Dominion Bureau of Statistics) to be Canada's central statistical agency, has become a vast storehouse of current and historical information on almost every kind of Canadian economic and social activity. It conducts the Census of Canada at 10-year intervals (years ending in '1') and five-year intervals (years ending in '6') and, in addition, regularly surveys social and economic change under some 21 broad subject-matter headings. Surveys are conducted monthly, quarterly, annually and as special studies, and the results are published on corresponding bases.

The bureau is a separate department of government reporting to Parliament through the Minister of Industry, Trade and Commerce. Its growth, both in personnel and in complexity of statistical activity, has closely paralleled the development of the nation as a modern and increasingly sophisticated industrial state. The total staff of the bureau, which includes the largest single body of social scientists in one organization in Canada, has more than doubled in the past 15 years to some 3,400 in 1972.

The bureau's statistical collection activities range throughout the nation, from large industrial cities to remote northern areas. The statistics resulting from these activities vary from well-known national aggregates, such as the national accounts, the consumer

price index, and employment and unemployment, to small census detail on urban localities a few city blocks in size. The information produced describes in quantitative terms the economic and social environment, and is used mainly to improve the quality of decision-making and research in the Canadian economy. Basic uses in the public sector are concerned with the development and administration of social and economic policies and programs; uses in the private sector are important and extensive, and are frequently in marketing and merchandising, in connection with the establishment of branch plants, retail outlets and a variety of other projects associated with the generation of economic activity. In addition, uses by business include various types of business research and economic forecasting.

Statistics Canada information is, for the most part, made available to the public in the form of publications although, for more sophisticated users, there is an increasing output in machine-readable form, such as computer tapes and sets of punch cards. In the most recent count, the bureau's publications totalled 1,177. Of these, 114 appear monthly or more frequently, 39 are issued quarterly, 377 annually, and 24 every two or three years. The publications produced as a result of the national census include 278 for 1961 and 122 for 1966; those containing the results of the 1971 Census will begin to appear during 1972. The other 223 publications are issued on an occasional basis and include special studies and manuals associated with statistical activities. These statistical reports are increasingly published in bilingual form or appear in separate English and French editions.

About 1,250,000 copies of Statistics Canada publications are issued yearly on a subscription basis, exclusive of the Statistics Canada Daily and Weekly which contain information in summary and preliminary forms and which have a total distribution of some 1,400,000 copies a year.

The publications program is designed to include the statistical information from each subject area that is most commonly used. However, in response to individual inquiries for more detail than may be contained in a regular publication, a large amount of unpublished information is issued in the form of special tabulations.

In addition to the publications program, there is a very large secondary distribution of statistical information through newspapers, magazines, trade journals, trade associations and radio and television broadcasts. Much Statistics Canada material also becomes part of a wide range of reference publications such as year books and encyclopedias and is incorporated into research studies, in books, learned journals, reports of Commissions of Inquiry, and in a great variety of other public and private documents.

The nature and extent of the bureau's output is made known to the public in several ways. The principal vehicle is the Catalogue of publications which is issued approximately every two years and kept up to date by means of current supplements. The Catalogue and supplements are free on request to Statistics Canada Information Division headquarters (postal address: Statistics Canada, Ottawa, Ont. K1A 0T6). The catalogue lists and describes the publications issued and the machine-readable and unpublished information that are available. Publications are grouped by subject areas; a commodity index has several thousand entries arranged in alphabetical order and cross-referenced where necessary to show the several publications in which information on a given subject may be found.

Statistics Canada publications may be obtained from the bureau headquarters by using the order form supplied with the Catalogue; they may also be obtained through bureau regional offices in St. John's, Halifax, Montreal, Ottawa, Toronto, Winnipeg, Edmonton and Vancouver (listed in city telephone directories under "Government of Canada"). More frequently used publications are also stocked by Information Canada bookstores in principal Canadian cities. Major public and university libraries, provincial libraries and the National Library in Ottawa have Statistics Canada publications available for reference and the bureau's library in Ottawa contains a complete collection of all such publications issued since the bureau was founded.

# DIRECTORY OF SOURCES OF OFFICIAL INFORMATION

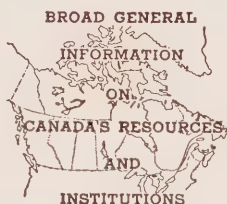
NOTE.—In the "Federal Data" column, the major source of information on each subject is given first; other sources follow in alphabetical order, with the exception of the National Film Board and Statistics Canada which appear at the end of each listing with which they are concerned, except where they are the major source.

## Sources for Federal Data

## Subject

## Sources for Provincial Data

Information Canada, Enquiries  
 Information Canada, Publishing Division (*Canada Gazette*, *Statutes of Canada*, annual, monthly and sectional catalogues)  
 Statistics Canada  
 Bank of Canada  
 Dept. of Agriculture  
 Information Division  
 Dept. of Consumer and Corporate Affairs  
 Information and Public Relations Branch  
 Dept. of Energy, Mines and Resources  
 Public Relations and Information Services  
 Dept. of the Environment  
 Information and Consumer Branch  
 Dept. of Finance  
 Information Service  
 Dept. of Indian Affairs and Northern Development  
 Public Information Adviser  
 Dept. of Industry, Trade and Commerce  
 Publicity Branch  
 Dept. of Labour  
 Public Relations and Information Services  
 Dept. of Manpower and Immigration  
 Information Service  
 Dept. of National Health and Welfare  
 Information Services  
 Dept. of National Revenue, Taxation  
 Information Service  
 Customs and Excise Division  
 (Information Services, Tax Communication—excise and sales tax; Port Administration—for Customs)  
 Dept. of the Secretary of State  
 Information Services  
 Dept. of Supply and Services  
 Communications and Public Relations Branch  
 National Library  
 National Film Board (films, filmstrips, slide sets on all subjects)



For broad general information in regard to particular provinces, application should be made to: **Nfld.**, Dept. of Provincial Affairs; **P.E.I.**, Executive Council, Information Services; **N.S.**, Dept. of Provincial Secretary or Director of Communications; **N.B.**, Dept. of Natural Resources, Travel Bureau; **Que.**, Dept. of Industry and Commerce, Bureau of Statistics, or Dept. of Tourism, Game and Fish; **Ont.**, Dept. of Treasury and Economics or Dept. of Tourism and Information; **Man.**, Dept. of Industry and Commerce or Information Services Branch, Dept. of Consumer, Corporate and Internal Services; **Sask.**, Dept. of Industry and Commerce or Executive Council; **Alta.**, Government Publicity Bureau; **B.C.**, Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics.

Dept. of Agriculture  
 Information Division  
 Canadian Wheat Board  
 Central Mortgage and Housing Corporation (mortgage loans for farm houses)  
 Dept. of Finance (farm improvement loans)  
 Dept. of Indian Affairs and Northern Development  
 Dept. of Industry, Trade and Commerce  
 Agriculture, Fisheries and Food Products Branch  
 Mechanical Transport Branch  
 Dept. of Manpower and Immigration (agricultural manpower programs)  
 Dept. of Regional Economic Expansion (Prairie Farm Rehabilitation Administration)

AGRICULTURE  
 General and  
 Farming

**Nfld.**—Dept. of Mines, Agriculture, and Resources  
**P.E.I.**—Dept. of Agriculture and Forestry  
**N.S.**, **N.B.**, **Man.**, **Sask.**, **Alta.**, **B.C.**—Dept. of Agriculture  
**Que.**—Dept. of Agriculture and Colonization, Information and Research Branch  
 Dept. of Industry and Commerce, Bureau of Statistics

Sources for Federal Data

Subject

Sources for Provincial Data

AGRICULTURE  
General and  
Farming—concl.

Dept. of Veterans Affairs (veterans farm loans)  
Farm Credit Corporation (mortgage loans; Farm Syndicates Credit Act loans)  
Information Canada, Publishing Division (agent for FAO publications)  
National Research Council  
Prairie Regional Laboratory, Saskatoon, Sask. (utilization of crops and crop products)  
Atlantic Regional Laboratory, Halifax, N.S. (application of scientific agriculture to cultivation of seaweeds)  
National Film Board  
Statistics Canada

Ont.:—Dept. of Agriculture and Food, Farm Economics and Statistics Branch and Information Branch

Dept. of Indian Affairs and Northern Development  
Public Information Adviser  
Dept. of Energy, Mines and Resources  
Polar Continental Shelf Project  
Earth Physics Branch  
Geological Survey of Canada  
Surveys and Mapping Branch  
Dept. of the Environment  
Information and Consumer Branch  
Marine Sciences Branch  
Dept. of National Defence  
Information Service  
Defence Research Board  
Dept. of National Health and Welfare  
Dept. of Public Works  
Information Services (highways, marine and accommodation)  
Ministry of Transport (airports, navigation, supply)  
Public Affairs  
National Library (books)  
National Museums of Canada  
National Research Council  
Division of Building Research (permafrost, building in the North, snow and ice)  
Public Archives (history)  
National Film Board

ARCTIC

Que.:—Dept. of Natural Resources, Arctic Quebec Branch  
Y.T.:—Territorial Secretary, Whitehorse, Y.T.  
N.W.T.:—Deputy Commissioner, Yellowknife, N.W.T.

ARTS  
Performing  
and  
Visual

National Gallery of Canada (collections, exhibitions of works of art)  
National Museum of Man  
Indian and Eskimo Art  
Canada Council  
Canadian Broadcasting Corporation  
Dept. of Indian Affairs and Northern Development (Indian and Eskimo art, historic museums)  
Dept. of Public Works  
Information Services (fine arts, federal buildings)  
Dept. of the Secretary of State  
Arts and Culture Branch  
Information Canada, Publishing Division (National Gallery exhibition catalogues, reproductions of paintings, coloured slides, etc.)  
National Arts Centre  
National Library (books)  
National Film Board (films, filmstrips, slide sets)

Nfld.:—Dept. of Provincial Affairs  
P.E.I.:—Dept. of Education  
N.S.:—Dept. of Provincial Secretary  
N.B.:—Dept. of Tourism  
Que.:—Dept. of Cultural Affairs  
Ont.:—Province of Ontario Council for the Arts  
Man.:—Manitoba Arts Council  
Dept. of Tourism, Recreation and Cultural Affairs  
Sask.:—Saskatchewan Arts Board  
Alta.:—Dept. of Culture, Youth and Recreation, Cultural Development Branch  
B.C.:—Dept. of Education, Community Programmes Branch

ASTRONOMY

National Research Council  
Radio and Electrical Engineering Division (Astrophysics Branch)



Sources for Federal Data	Subject	Sources for Provincial Data
Atomic Energy of Canada Limited (research studies, sale of radio- isotopes) Atomic Energy Control Board (policy, regulations) Dept. of Energy, Mines and Re- sources Energy Development Sector Geological Survey of Canada Mines Branch Eldorado Nuclear Limited Information Canada, Publishing Division (agent for International Atomic Energy Agency publica- tions) National Film Board (films, multi- media kits)	ATOMIC ENERGY	N.S.:—Dept. of Development Que.:—Dept. of Natural Resources Hydro-Quebec Ont.:—Dept. of the Environment The Hydro-Electric Power Com- mission of Ontario Man.:—Dept. of Industry and Com- merce, Manitoba Research Council University of Manitoba, Physics Dept. Sask.:—University of Saskatchewan Saskatchewan Research Council Alta.:—Alberta Research Council B.C.:—University of British Colum- bia British Columbia Research Council
Ministry of Transport Civil Aviation Branch (control; licensing; airports and air navi- gation facilities) Public Affairs Air Canada Canadian Transport Commission Air Transport Committee Dept. of Energy, Mines and Re- sources Aeronautical Charts Division Dept. of Indian Affairs and Northern Development (northern resources airports) Dept. of Industry, Trade and Com- merce Aerospace, Marine and Rail Branch Materials Branch Dept. of National Defence Information Service Dept. of National Health and Welfare Civil Aviation Medicine Division Dept. of Supply and Services Communications and Public Rela- tions Branch Information Canada, Publishing Division (agent for International Civil Aviation Organization pub- lications) National Museums of Canada (his- torical) National Research Council National Aeronautical Establish- ment Division of Mechanical Engineering National Film Board (films) Statistics Canada	AVIATION	Nfld.:—Dept. of Mines, Agriculture, and Resources Dept. of Supply and Services P.E.I., Sask.:—Dept. of Industry and Commerce Que.:—Dept. of Transport, Central Aerial Transportation Service Ont.:—Dept. of Lands and Forests, Forest Protection Branch Man.:—Manitoba Government Air Services Dept. of Industry and Commerce Alta.:—Dept. of Industry, Transport Research and Development Di- vision
Bank of Canada Industrial Development Bank Canada Deposit Insurance Corpora- tion Dept. of Finance (for banking; also small business loans)	BANKING Trust, Loan and Investment Companies Foreign Exchange	Nfld.:—Dept. of Finance Dept. of Provincial Affairs P.E.I.:—Dept. of Provincial Secre- tary N.S.:—Dept. of Provincial Secretary Dept. of Finance N.B.:—Dept. of Justice Que.:—Dept. of Financial Institu- tions, Companies and Co-opera- tives Dept. of Municipal Affairs, Quebec Housing Corporation Dept. of Industry and Commerce, Bureau of Statistics Ont.:—Dept. of Financial and Com- mercial Affairs

Sources for Federal Data

Subject

Sources for Provincial Data

Dept. of Insurance (trust, mortgage  
loan and investment companies  
business)  
Statistics Canada

**BANKING**  
Trust, Loan  
and Investment  
Companies  
Foreign Exchange  
—concluded

Man.:—Manitoba Development  
Corporation  
Manitoba Agricultural Credit Cor-  
poration  
Dept. of Finance  
Sask.:—Provincial Secretary  
Dept. of Co-operation and Co-  
operative Development  
Alta.:—Treasury Dept., Superin-  
tendent of Treasury Branches  
Dept. of Attorney General, Alberta  
Security Commission  
B.C.:—Dept. of Finance, Inspector  
of Trust Companies

Dept. of Consumer and Corporate  
Affairs  
Superintendent of Bankruptcy  
Statistics Canada

**BANKRUPTCY**

Nfld., N.B.:—Dept. of Justice and  
P.E.I.:—Dept. of Justice and  
Attorney General  
N.S., Man., Alta., B.C.:—Depts.  
of Attorney General  
Que.:—Minister of Justice  
Ont.:—Dept. of Financial and Com-  
mercial Affairs  
Sask.:—Dept. of Provincial Secre-  
tary

National Library (information re  
Canadian publications and books  
in Canadian libraries; national  
bibliographies of other countries)  
Dept. of Indian Affairs and Northern  
Development, Departmental  
Library (Indians, Eskimos, the  
North)  
Dept. of National Defence (library)  
Dept. of Regional Economic Expan-  
sion  
Information Canada, Publishing  
Division (Official Classification  
of Canadian Government Pub-  
lications; annual, monthly and  
sectional catalogues)  
Library of Parliament (political and  
parliamentary matters)  
National Gallery of Canada (infor-  
mation on art books and  
periodicals)  
National Research Council  
National Science Library (infor-  
mation re identification and location  
of scientific serials and research  
reports)  
Statistics Canada  
Information Division (for statis-  
tical publications)

**BIBLIOGRAPHY**

Nfld.:—Dept. of Education  
Public Libraries Board  
Dept. of Provincial Affairs, Ar-  
chives  
P.E.I.:—Executive Council Secre-  
tariat  
N.S., N.B.:—Dept. of Education,  
Provincial Librarian  
Que.:—National Assembly Library  
Dept. of Cultural Affairs  
Quebec Archives  
National Library of Quebec  
Ont.:—Dept. of Education, Pro-  
vincial Library Service  
Legislative Library  
Man.:—Provincial Librarian  
Sask.:—Provincial Library  
Legislative Library  
Alta.:—Dept. of Culture, Youth and  
Recreation  
Provincial Library  
Provincial Museum and Archives  
B.C.:—Dept. of Provincial Secretary  
Provincial Library and Archives  
Public Library Commission

Dept. of the Secretary of State  
Social Action Branch  
Language Administration Branch  
Research and Planning Branch  
Translation Bureau  
Bilingual Districts Advisory Board  
Public Service Commission  
Treasury Board Secretariat

**BILINGUALISM**

P.E.I.:—Dept. of Education  
N.B.:—Premier's Office  
Man.:—Federal-Provincial Cultural  
Relations Secretariat

Canadian Radio-Television Com-  
mission  
Information Services  
Canadian Broadcasting Corporation  
Canadian Overseas Telecommuni-  
cation Corporation  
Dept. of Communications

**BROADCASTING**  
Radio and  
Television

P.E.I.:—Executive Council Secre-  
tariat  
Que.:—Dept. of Cultural Affairs  
Radio Quebec  
Dept. of Communications  
Ont.:—Dept. of Transportation and  
Communications

Sources for Federal Data	Subject	Sources for Provincial Data
Dept. of Industry, Trade and Commerce Electrical and Electronics Branch Dept. of the Secretary of State Arts and Culture Branch National Research Council Radio and Electrical Engineering Division (radio science and its application to industry)	<b>BROADCASTING</b> Radio and Television—concl.	Man.:—Information Services Branch TV and Radio Sections Sask.:—Dept. of Natural Resources, Communications Division Saskatchewan Telecommunications Alta.:—Radio CKUA, Edmonton, operated by Alberta Government Telephones B.C.:—Dept. of Lands, Forests, and Water Resources, Radio Section
Central Mortgage and Housing Corporation (NHA financing, house designs, building standards) Canadian Standards Association Dept. of Agriculture (farm building plans) Dept. of the Environment Forest Products Laboratories Dept. of Finance (Farm Improvement Loans Act; Small Businesses Loans Act) Dept. of Indian Affairs and Northern Development (building in the North, Indian reserves and national parks) Dept. of Industry, Trade and Commerce Materials Branch Wood Products Branch Dept. of National Health and Welfare Hospital Design Division Dept. of Public Works Information Services Dept. of Supply and Services Technical Services Branch Dept. of Veterans Affairs (Soldier Settlement and Veterans Land Act) Farm Credit Corporation Ministry of Transport Air Services Construction Branch (airport terminal buildings, etc.) National Research Council Division of Building Research National Film Board Statistics Canada	<b>BUILDING CONSTRUCTION</b>	Nfld., N.B.:—Dept. of Public Works P.E.I.:—Dept. of Public Works and Highways N.S.:—Dept. of Labour Nova Scotia Housing Commission Que.:—Dept. of Municipal Affairs Quebec Housing Corporation Dept. of Industry and Commerce, Bureau of Statistics Ont.:—Dept. of Municipal Affairs, Community Planning Branch Man.:—Dept. of Industry and Commerce Sask.:—Dept. of Industry and Commerce Dept. of Labour Alta.:—Dept. of Industry, Alberta Bureau of Statistics Dept. of Labour B.C.:—Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics
	<b>CANADA PENSION PLAN</b> See "Pensions"	
Dept. of Industry, Trade and Commerce Chemicals Branch National Research Council Division of Chemistry Statistics Canada	<b>CHEMICALS</b>	Que.:—Dept. of Natural Resources Ont.:—Ontario Research Foundation Man., Sask.:—Dept. of Industry and Commerce Alta.:—Alberta Research Council Dept. of Industry, Industrial Development Branch B.C.:—British Columbia Research Council
Dept. of the Secretary of State Citizenship Development Branch Citizenship Registration Branch Citizenship Regional Offices Opportunities for Youth National Film Board	<b>CITIZENSHIP</b> See also "Population"	Que.:—Dept. of Immigration Ont.:—Dept. of Provincial Secretary and Citizenship

Sources for Federal Data

Subject

Sources for Provincial Data

Emergency Measures Organization  
Dept. of National Defence  
Dept. of National Health and Welfare  
Emergency Health Services  
Emergency Welfare Services  
Dept. of Public Works  
Emergency Planning  
Dept. of Supply and Services

CIVIL  
DEFENCE

Nfld.:—Dept. of Provincial Affairs  
P.E.I., N.S.:—Dept. of Provincial Secretary  
N.B.:—Dept. of Municipal Affairs  
Que.:—Dept. of Justice  
Ont.:—Dept. of Attorney General, Emergency Measures Organization  
Man.:—Dept. of Mines, Resources and Environmental Management  
Emergency Measures Organization  
Sask.:—Emergency Measures Organization  
Executive Council  
Alta.:—Emergency Measures Organization  
B.C.:—Dept. of Provincial Secretary, Provincial Co-ordinator

Atmospheric Environment Service, Toronto  
Information Canada, Publishing Division (agent for World Meteorological Organization publications)  
National Research Council  
Division of Building Research (Climatological Atlas of Canada, National Building Code)

CLIMATE

P.E.I.:—Dept. of Agriculture and Forestry  
Que.:—Dept. of Natural Resources, Meteorological Bureau  
Ont.:—Dept. of Agriculture and Food, Farm Economics and Statistics Branch  
Man., Alta.:—Dept. of Agriculture  
Sask.:—Saskatchewan Research Council  
B.C.:—Dept. of Agriculture  
Dept. of Lands, Forests, and Water Resources, Hydrology Division

Dept. of Energy, Mines and Resources  
Energy Development Sector  
Geological Survey of Canada  
Mines Branch  
Dept. of Industry, Trade and Commerce  
Materials Branch  
National Film Board  
Statistics Canada

COAL

N.S.:—Dept. of Mines  
N.B., Que.:—Dept. of Natural Resources  
Ont.:—Dept. of Mines  
Dept. of Energy and Resources Management  
Man.:—Dept. of Mines and Natural Resources, Mines Branch  
Sask.:—Dept. of Mineral Resources  
Dept. of Industry and Commerce  
Alta.:—Dept. of Mines and Minerals  
Alberta Research Council  
B.C.:—Dept. of Mines and Petroleum Resources

Dept. of Consumer and Corporate Affairs  
Director of Investigation and Research  
Restrictive Trade Practices Commission

COMBINES

Dept. of Communications  
Atmospheric Environment Service, Toronto  
Canadian Broadcasting Corporation  
Canadian Overseas Telecommunication Corporation  
Canadian Radio-Television Commission  
Information Services  
Canadian Transport Commission  
Railway Committee  
Dept. of Supply and Services  
Electrical and Electronics Branch  
Information Canada, Publishing Division (agent for International Telecommunication Union publications)  
Ministry of Transport (radio aids, aeronautical and marine navigation)  
National Museums of Canada (historical)  
National Film Board  
Statistics Canada

COM-  
MUNICATIONS  
See also  
"Postal Service"

Nfld.:—Dept. of Community and Social Development  
Board of Public Utilities Commissioners  
P.E.I.:—Dept. of Labour, Industry and Commerce  
Dept. of Public Works and Highways  
N.S.:—Board of Commissioners of Public Utilities  
N.B.:—Premier's Office  
Dept. of Tourism  
Que.:—Dept. of Communications  
Ont.:—Dept. of Transportation and Communications  
Ontario Provincial Police, Radio Communications Branch  
Man.:—Manitoba Telephone System  
Sask.:—Saskatchewan Telecommunications  
Alta.:—Alberta Government Telephones  
B.C.:—Dept. of Commercial Transport



Sources for Federal DataSubjectSources for Provincial Data

Dept. of the Secretary of State  
Citizenship Development Branch  
Citizenship Regional Offices  
Arts and Culture Branch  
Social Action Branch  
Opportunities for Youth  
Company of Young Canadians  
Dept. of Indian Affairs and Northern  
Development  
National Film Board

**COMMUNITY  
AND INTER-  
CULTURAL  
RELATIONS**

Nfld.:—Dept. of Provincial Affairs  
Que.:—Dept. of Intergovernmental  
Affairs  
Dept. of Cultural Affairs  
Man.:—Federal-Provincial Cultural  
Relations Secretariat  
Alta.:—Dept. of Culture, Youth and  
Recreation, Cultural Develop-  
ment Branch

Central Mortgage and Housing Cor-  
poration  
Company of Young Canadians  
Dept. of Indian Affairs and Northern  
Development  
Dept. of National Health and Welfare  
(health, social welfare and rec-  
reation)  
Dept. of Regional Economic Expan-  
sion  
(rural economic development)  
National Capital Commission  
Information Services (general in-  
formation on the National Cap-  
ital and the National Capital  
Region)  
National Film Board

**COMMUNITY  
PLANNING**

Nfld.:—Dept. of Municipal Affairs  
and Supply  
Dept. of Community and Social  
Development  
P.E.I.:—Dept. of Community Ser-  
vices  
N.S., N.B.:—Dept. of Municipal  
Affairs  
Que.:—Dept. of Municipal Affairs,  
Industry Branch  
Planning Bureau  
Ont.:—Dept. of Municipal Affairs,  
Community Planning Branch  
Man.:—Dept. of Municipal Affairs,  
Planning Branch  
Dept. of Urban Affairs  
Sask.:—Dept. of Municipal Affairs,  
Community Planning Branch  
Alta.:—Dept. of Municipal Affairs,  
Provincial Planning Office  
B.C.:—Dept. of Municipal Affairs,  
Regional Planning Division

Dept. of the Environment  
Information and Consumer Branch  
Canadian Wildlife Service  
Water Management Service  
Dept. of Energy, Mines and  
Resources  
Mines Branch  
Dept. of Indian Affairs and Northern  
Development (the Arctic, na-  
tional parks, national historic  
parks and sites)  
Dept. of Regional Economic Expan-  
sion  
Prairie Farm Rehabilitation Ad-  
ministration  
National Capital Commission  
National Museums of Canada  
National Film Board

**CONSERVATION**

Nfld.:—Dept. of Mines, Agriculture,  
and Resources  
P.E.I.:—Dept. of the Environment  
and Tourism  
N.S.:—Dept. of Lands and Forests  
N.B.:—Dept. of Fisheries and En-  
vironment  
Dept. of Natural Resources  
Que.:—Dept. of Lands and Forests  
Dept. of Tourism, Game and Fish  
Dept. of Natural Resources  
Ont.:—Dept. of the Environment  
Man.:—Dept. of Mines, Resources  
and Environmental Manage-  
ment, Development and Exten-  
sion Service  
Sask.:—Dept. of Natural Resources  
Dept. of Agriculture, Conservation  
and Development Branch  
Alta.:—Dept. of the Environment,  
Energy Resources Conservation  
Board  
B.C.:—Dept. of Lands, Forests and  
Water Resources  
Dept. of Recreation and Conserva-  
tion

Privy Council Office  
Dept. of Consumer and Corporate  
Affairs (Great Seal of Canada,  
etc.)  
Dept. of Justice  
Information Canada, Publishing  
Division (Statutes of Canada,  
Hansard, Organization of the  
Government of Canada Hand-  
books, and Daily Checklist of  
Government Publications)  
Library of Parliament  
National Library (books)  
Public Archives  
National Film Board (filmstrips on  
government)

**CONSTITUTION**

All Provinces except Nfld., P.E.I.,  
Que., Alta. and B.C.:—Dept.  
of Attorney General  
Nfld.:—Dept. of Justice  
P.E.I.:—Executive Council Secre-  
tariat  
Que.:—Dept. of Intergovernmental  
Affairs  
Alta.:—Dept. of Federal and Inter-  
governmental Affairs  
B.C.:—Dept. of Provincial Secretary

Sources for Federal Data	Subject	Sources for Provincial Data
<p>Dept. of Consumer and Corporate Affairs Statistics Canada (indexes)</p>	<p>CONSUMER AFFAIRS Consumer Price Indexes See also "Cost of Living"</p>	<p>Nfld.:—Dept. of Provincial Affairs P.E.I., N.S., N.B., Sask.:—Dept. of Provincial Secretary Que.:—Dept. of Industry and Commerce, Bureau of Statistics Man.:—Dept. of Consumer, Corporate and Internal Services Alta.:—Dept. of Labour, Consumer Credit Branch B.C.:—Dept. of Attorney General Consumer Affairs Office</p>
<p>Dept. of Agriculture Economics Branch Central Mortgage and Housing Corporation (mortgage-lending activities) Dept. of Consumer and Corporate Affairs Corporations Branch Dept. of the Environment Fisheries Service Dept. of Indian Affairs and Northern Development Dept. of Insurance (Co-operative Credit Associations Act) National Film Board</p>	<p>CO-OPERATIVES (including Credit Unions)</p>	<p>Nfld.:—Dept. of Mines, Agriculture, and Resources P.E.I., N.S.:—Dept. of Provincial Secretary N.B.:—Dept. of Agriculture Que.:—Dept. of Financial Institutions, Companies and Co-operatives Dept. of Industry and Commerce, Bureau of Statistics Ont.:—Dept. of Agriculture and Food, Co-operatives Branch Dept. of Financial and Commercial Affairs (credit unions) Man.:—Dept. of Co-operative Development Dept. of Finance Sask.:—Dept. of Co-operation and Co-operative Development Alta.:—Dept. of Agriculture, Co-operative Activities and Credit Union Branch B.C.:—Dept. of Attorney General Registrar of Companies</p>
<p>Dept. of Consumer and Corporate Affairs Statistics Canada (wholesale and retail prices and consumer price index)</p>	<p>COST OF LIVING See also "Consumer Affairs"</p>	<p>Nfld.:—Dept. of Municipal Affairs and Supply N.B.:—Dept. of Finance, Economic Adviser Que.:—Dept. of Industry and Commerce, Bureau of Statistics Ont.:—Dept. of Treasury and Economics Man.:—Dept. of Industry and Commerce, Economic, Business and Transportation Research Branch Sask.:—Dept. of Labour Dept. of Provincial Secretary Alta.:—Dept. of Industry, Alberta Bureau of Statistics B.C.:—Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics</p>
<p>Canada Council Dept. of Indian Affairs and Northern Development (Indian and Eskimo arts and crafts; national parks, national historic parks) Dept. of Industry, Trade and Commerce National Design Council</p>	<p>CREATIVE ARTS AND HANDICRAFTS</p>	<p>Nfld.:—Dept. of Education P.E.I.:—Dept. of the Environment and Tourism Dept. of Education, Physical Fitness Division N.S.:—Dept. of Education Nova Scotia College of Art N.B.:—Dept. of Tourism Que.:—Dept. of Cultural Affairs Dept. of Agriculture and Colonization Ont.:—Dept. of Education, Youth and Recreation Branch Dept. of Agriculture and Food, Home Economics Service</p>

Sources for Federal Data	Subject	Sources for Provincial Data
Dept. of the Secretary of State Arts and Culture Branch Dept. of Veterans Affairs (veterans only) Information Canada, Publishing Division (UNESCO coloured slides) National Library (books) National Museums of Canada Public Archives National Film Board	<b>CREATIVE ARTS AND HANDICRAFTS</b> <i>—concluded</i>	<b>Man.:</b> —Dept. of Agriculture, Extension Service Dept. of Health and Social Development, Native Handicraft Promotion Officer <b>Sask.:</b> —Dept. of Education Saskatchewan Arts Board <b>Alta.:</b> —Dept. of Culture, Youth and Recreation, Cultural Development Branch <b>B.C.:</b> —Provincial Museum (Indian handicrafts) Dept. of Education, Community Programmes Branch Dept. of Industrial Development, Trade, and Commerce
Dept. of Solicitor General Canadian Penitentiary Service National Parole Board Royal Canadian Mounted Police Dept. of Justice Criminal Law Section National Film Board Statistics Canada	<b>CRIME AND DELINQUENCY</b>	<b>All Provinces except Nfld. and P.E.I.:</b> —Dept. of Attorney General <b>Nfld.:</b> —Dept. of Justice Dept. of Social Services and Rehabilitation <b>P.E.I.:</b> —Dept. of Justice and Attorney General <b>Additional:</b> —N.S.:—Dept. of Public Welfare <b>N.B.:</b> —Dept. of Justice <b>Que.:</b> —Dept. of Social Affairs Dept. of Justice <b>Ont.:</b> —Dept. of Correctional Services <b>Man., Alta.:</b> —Dept. of Health and Social Development <b>Sask.:</b> —Dept. of Welfare <b>B.C.:</b> —Dept. of Rehabilitation and Social Improvement
See pp. 153-162 for a list of Crown corporations giving the functions of each and the Cabinet Minister through whom each reports to Parliament.	<b>CROWN CORPORATIONS</b>	<b>Nfld.:</b> —Dept. of Justice Dept. of Public Works <b>P.E.I.:</b> —Executive Council Secretariat <b>N.S.:</b> —Dept. of Development <b>N.B.:</b> —Dept. of Finance Dept. of Economic Growth <b>Que.:</b> —Dept. of Finance Dept. of Financial Institutions, Companies and Co-operatives <b>Ont.:</b> —Dept. of Provincial Secretary <b>Man.:</b> —Dept. of Finance Public Utilities Board <b>Sask.:</b> —Government Finance Office <b>Alta.:</b> —Dept. of Industry <b>B.C.:</b> —Dept. of Attorney General
Bank of Canada Royal Canadian Mint	<b>CURRENCY</b>	
Dept. of National Revenue Customs and Excise Division (Port Administration for Imports—formalities and prohibitions; international travel and border crossing questions)	<b>CUSTOMS OPERATIONS</b>	
Dept. of Agriculture Dairy Division Livestock Division Research Branch Animal Research Institute Food Research Institute	<b>DAIRYING</b>	<b>Nfld.:</b> —Dept. of Mines, Agriculture, and Resources <b>P.E.I.:</b> —Dept. of Agriculture and Forestry <b>N.S.:</b> —Dept. of Agriculture <b>N.B., Ont., Alta., B.C.:</b> —Dept. of Agriculture, Dairy Branch (also Milk Industry Board of Ont. and Milk Control Board of B.C.)

Sources for Federal Data

Subject

Sources for Provincial Data

Canadian Dairy Commission  
Dept. of Industry, Trade and Commerce  
Agriculture, Fisheries and Food Products Branch  
National Film Board  
Statistics Canada

DAIRYING  
—concluded

Que.:—Dept. of Agriculture and Colonization, Dairy Products Branch  
Dept. of Industry and Commerce, Bureau of Statistics  
Man.:—Dept. of Agriculture, Animal Industry Branch  
Sask.:—Dept. of Agriculture, Production and Marketing Branch

DEATHS  
See "Vital Statistics"

Dept. of National Defence  
Information Service  
Defence Research Board  
Dept. of External Affairs (NATO)  
Dept. of Supply and Services  
Canadian Commercial Corporation  
Canadian Arsenal Limited  
National Film Board

DEFENCE  
See also  
"Civil Defence"

Dept. of National Health and Welfare  
Dept. of Veterans Affairs (war disabled veterans)

DISABLED  
PERSONS  
ALLOWANCES

Nfld.:—Dept. of Social Services and Rehabilitation  
P.E.I., Sask.:—Dept. of Welfare  
N.S.:—Dept. of Public Welfare  
N.B.:—Dept. of Youth and Welfare  
Que.:—Dept. of Social Affairs  
Ont.:—Dept. of Social and Family Services, Family Benefits Branch  
Man., Alta.:—Dept. of Health and Social Development  
B.C.:—Dept. of Rehabilitation and Social Improvement  
Y.T.:—Dept. of Welfare (Director)  
N.W.T.:—Dept. of Social Development (Director)

DRUGS  
See "Food and Drugs"

Economic Council of Canada  
Dept. of Finance  
Dept. of Indian Affairs and Northern Development (the North, Indian reserves, national parks)  
Dept. of Manpower and Immigration  
Program Development Service  
Dept. of Regional Economic Expansion  
Dept. of the Secretary of State (financial support to post-secondary education)  
Treasury Board

ECONOMIC  
PLANNING

Nfld.:—Dept. of Community and Social Development  
P.E.I.:—Planning and Development Board  
N.S.:—Dept. of Development  
N.B.:—Dept. of Economic Growth  
Que.:—Executive Council  
Quebec Planning and Development Bureau  
Dept. of Labour and Manpower  
Dept. of Social Affairs  
Ont.:—Dept. of Treasury and Economics  
Man.:—Planning and Priorities Committee Secretariat  
Sask.:—Dept. of Industry and Commerce  
Treasury Dept.  
Alta.:—Dept. of Industry  
B.C.:—Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics



Sources for Federal DataSubjectSources for Provincial Data

Dept. of Regional Economic Expansion  
 Bank of Canada  
 Central Mortgage and Housing Corporation  
 Company of Young Canadians  
 Dept. of Agriculture  
 Economics Branch  
 Dept. of Consumer and Corporate Affairs  
 Bureau of Consumer Affairs  
 Dept. of Energy, Mines and Resources  
 Energy Development Sector  
 Mineral Development Sector  
 Dept. of the Environment  
 Economics Branch  
 Forest Economics Research Institute  
 Dept. of Finance  
 Economic Analysis, Fiscal Policy and International Finance Branch  
 Dept. of Indian Affairs and Northern Development (Y.T. and N.W.T., Indian reserves, national parks)  
 Dept. of Industry, Trade and Commerce  
 Office of Economics  
 Dept. of Labour  
 Economics and Research Branch  
 Public Relations and Information Services  
 Dept. of Manpower and Immigration  
 Program Development Service  
 Dept. of National Health and Welfare  
 Research and Statistics Directorate  
 Dept. of the Secretary of State  
 Citizenship Branch (social research and adult education services)  
 Fisheries Research Board of Canada  
 Information Canada, Publishing Division (agent for UNESCO and OECD publications)  
 Ministry of Transport  
 Transportation Policy and Research Branch  
 Public Archives (early data)  
 Statistics Canada

ECONOMIC  
AND SOCIAL  
RESEARCH

Nfld.:—Dept. of Community and Social Development  
 P.E.I.:—Planning and Development Board  
 Dept. of Economic Development  
 N.S.:—Dept. of Development  
 Nova Scotia Research Foundation  
 N.B.:—Dept. of Finance  
 Que.:—Dept. of Industry and Commerce, Economic Studies Branch, Bureau of Statistics  
 Quebec Planning and Development Bureau  
 Dept. of Labour and Manpower  
 Dept. of Social Affairs  
 Ont.:—Dept. of Treasury and Economics  
 Dept. of Trade and Development  
 Dept. of Agriculture and Food, Farm Economics and Statistics Branch  
 Dept. of Municipal Affairs, Community Planning Branch  
 Dept. of Health, Research and Planning Branch  
 Alcoholism and Drug Addiction Research Foundation of Ontario  
 Man.:—Dept. of Industry and Commerce, Economic Business and Transportation Research Branch  
 Dept. of Agriculture, Economics Branch  
 Dept. of Health and Social Development, Office of Research and Planning  
 Sask.:—Dept. of Industry and Commerce  
 Dept. of Co-operation and Co-operative Development  
 Alta.:—Human Resources Research Council  
 B.C.:—Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics

Statistics Canada  
 Canada Council  
 Canadian Broadcasting Corporation (educational broadcasts)  
 Canadian Radio-Television Commission  
 Central Mortgage and Housing Corporation  
 Information Division  
 Company of Young Canadians  
 Dept. of the Environment  
 Information and Consumer Branch  
 Dept. of Finance (Canada Student Loans Act)  
 Dept. of Indian Affairs and Northern Development (Indian and Eskimo education, national parks, national historic parks and sites)  
 Dept. of Manpower and Immigration  
 Programs Branch  
 Dept. of National Defence  
 Director of Education (service dependants' schools)

EDUCATION  
 See also  
 "Film Production  
 and Libraries"  
 and "Photographic  
 Material"

All Provinces except Man.:—Dept. of Education (technical, visual, audio and all other phases of education)  
 Man.:—Dept. of Youth and Education

Sources for Federal Data

Subject

Sources for Provincial Data

Dept. of National Health and Welfare  
Dept. of Regional Economic Expansion (adult basic education)  
Dept. of the Secretary of State  
Citizenship Branch (educational travel and exchange programs)  
Education Support Branch  
Education Research and Liaison Branch  
Dept. of Veterans Affairs (veterans and children of war dead)  
Information Canada, Publishing Division (agent for UNESCO publications)  
National Museums of Canada  
Education and Extension Branch (school talks, publications, lectures, films)

EDUCATION—  
concluded

*Additional:—Alta.:*—Dept. of Advanced Education  
*B.C.:*—Dept. of Labour, Apprenticeship and Industrial Training Branch

Chief Electoral Office  
Library of Parliament  
Office of the Representation Commissioner  
Public Archives

ELECTIONS

*Nfld.:*—Dept. of Provincial Affairs  
*P.E.I., N.S., N.B., Ont.:*—Dept. of Provincial Secretary  
*Que.:*—Chief Returning Officer  
*Man., B.C.:*—Chief Electoral Officer  
*Sask.:*—Electoral Office  
Executive Council  
*Alta.:*—Clerk of the Executive Council

Dept. of Energy, Mines and Resources  
Energy Development Sector  
National Energy Board  
National Research Council  
Radio and Electrical Engineering Division  
Northern Canada Power Commission  
National Film Board  
Statistics Canada

ELECTRIC  
POWER

*Nfld.:*—Newfoundland and Labrador Power Commission  
*P.E.I.:*—Public Utilities Commission  
*N.S.:*—Power Commission  
*N.B.:*—New Brunswick Electric Power Commission  
*Que.:*—Hydro-Electric Commission  
Dept. of Natural Resources  
*Ont.:*—Dept. of Energy and Resources Management  
The Hydro-Electric Power Commission of Ontario  
*Man.:*—Manitoba Hydro  
Winnipeg City Board  
*Sask.:*—Saskatchewan Power Corporation  
*Alta.:*—Energy Resources Conservation Board  
*B.C.:*—British Columbia Hydro and Power Authority

Dept. of Manpower and Immigration  
Canada Manpower Centres  
Dept. of Labour  
Economics and Research Branch  
Public Relations and Information Services  
Information Canada, Publishing Division (agent for ILO publications)  
Public Service Commission (staffing the public service)  
Statistics Canada

EMPLOYMENT

*Nfld., N.S., N.B., Man., Sask., Alta.:*—Dept. of Labour  
*P.E.I.:*—Dept. of Labour  
Civil Service Commission  
*Que.:*—Dept. of Labour and Manpower, Manpower Centres  
Bureau of Statistics  
*Ont.:*—Dept. of Treasury and Economics  
Dept. of Labour  
Dept. of Civil Service  
*B.C.:*—Dept. of Labour  
Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics

Dept. of the Environment  
Information and Consumer Branch  
Atmospheric Environment Service, Toronto  
Environmental Protection Service  
Fisheries Research Board of Canada  
Fisheries Service  
Lands, Forests and Wildlife Service  
Water Management Service

ENVIRONMENT

*Nfld.:*—Dept. of Mines, Agriculture, and Resources  
*P.E.I.:*—Dept. of the Environment and Tourism  
*N.S.:*—Nova Scotia Water Resources Commission  
*N.B.:*—Dept. of Fisheries and Environment

Sources for Federal Data	Subject	Sources for Provincial Data
Dept. of Agriculture Dept. of Energy, Mines and Resources Dept. of Indian Affairs and Northern Development Ministry of Transport National Museums of Canada National Film Board Statistics Canada	<div>ENVIRONMENT</div> <div>—concluded</div>	Que.:—Environmental Protection Service Ont., Alta.:—Dept. of the Environment Man.:—Dept. of Mines, Resources and Environmental Management B.C.:—Dept. of Recreation and Conservation
Dept. of Indian Affairs and Northern Development Dept. of National Health and Welfare (health and hospital services) National Museums of Canada National Film Board	<div>ESKIMOS</div>	Nfld.:—Dept. of Labrador Affairs Dept. of Public Welfare Que.:—Dept. of Natural Resources, New Quebec Branch
Information Canada, Expositions Central Mortgage and Housing Corporation (housing exhibits) Dept. of Agriculture Livestock Division Dept. of Energy, Mines and Resources Public Relations and Information Services Dept. of the Environment Information and Consumer Branch Dept. of Indian Affairs and Northern Development Public Information Adviser Dept. of Industry, Trade and Commerce Fairs and Missions Branch Publicity Branch Dept. of Labour Public Relations and Information Services Dept. of Manpower and Immigration Information Service Dept. of National Defence Directorate of Exhibitions and Displays Dept. of National Health and Welfare Information Division Dept. of Public Works Information Services National Library National Museums of Canada National Gallery of Canada Museum of Natural Sciences Museum of Man Museum of Science and Technology National Film Board	<div>EXHIBITIONS</div>	Nfld.:—Dept. of Mines, Agriculture, and Resources P.E.I.:—Dept. of Agriculture and Forestry N.S.:—Dept. of Agriculture N.B.:—Dept. of Tourism Dept. of Economic Growth Que.:—Dept. of Agriculture and Colonization Dept. of Cultural Affairs Dept. of Industry and Commerce Dept. of Intergovernmental Affairs Ont.:—Most Ontario Departments organize exhibitions Man.:—Dept. of Agriculture Extension Service Dept. of Industry and Commerce Sask.:—Dept. of Agriculture Dept. of Industry and Commerce Alta.:—Dept. of Agriculture Alberta Government Publicity Bureau B.C.:—Dept. of Agriculture Dept. of Industrial Development, Trade, and Commerce
Dept. of Industry, Trade and Commerce Trade Commissioner Service Fairs and Missions Branch Publicity Branch	<div>EXPORT PROMOTION</div>	P.E.I., Que., Sask.:—Dept. of Industry and Commerce N.B.:—Dept. of Economic Growth Ont.:—Dept. of Trade and Development Man.:—Dept. of Industry and Commerce, Manitoba Export Corporation Alta.:—Dept. of Industry, Industrial Development Branch B.C.:—Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics

Sources for Federal Data

Subject

Sources for Provincial Data

**EXTERNAL  
AFFAIRS**  
See also "Trade"

**FAMILY  
AND YOUTH  
ALLOWANCES**

**FIELD CROPS**

**FILM  
PRODUCTION  
AND  
LIBRARIES**

Dept. of External Affairs  
Information Division  
Canadian International Development  
Agency  
Dept. of Labour  
International Labour Affairs  
Branch (ILO; OECD)  
Dept. of National Health and Welfare  
International Health  
International Welfare, Research  
and Statistics  
Information Canada, Publishing Di-  
vision (agent for international  
organizations publications)

Dept. of National Health and Welfare  
(including assistance to families  
entering Canada not yet eligible  
for family allowances)

Dept. of Agriculture  
Production and Marketing Branch  
Plant Research Institute  
Dept. of Industry, Trade and Com-  
merce  
Agriculture, Fisheries and Food  
Products Branch  
Grains Group  
Dept. of Manpower and Immigration  
(harvest work force)  
Information Canada, Publishing Di-  
vision (agent for FAO publica-  
tions)  
National Research Council  
Prairie Regional Laboratory, Sas-  
katoon, Sask. (utilization of  
crops and crop products)  
Statistics Canada

National Film Board  
(*Produces documentary films and  
short subjects for theatrical, non-  
theatrical and television distribution;  
filmstrips, slides. Production avail-  
able to the public through local and  
provincial film libraries, NFB regional  
libraries and several district offices.*)  
Canadian Broadcasting Corporation  
Canadian Film Development Corpo-  
ration (to foster and promote the  
development of a feature film  
industry in Canada)  
Canadian Radio-Television Commis-  
sion  
Central Mortgage and Housing Cor-  
poration (library of films on  
housing and urban renewal)  
Dept. of the Environment  
Information and Consumer Branch  
(lending library of forestry train-  
ing and resource films)  
Dept. of Industry, Trade and Com-  
merce  
Publicity Branch (lending library  
of industrial and trade promo-  
tion films)  
Dept. of Labour  
Public Relations and Information  
Services (maintains National In-  
dustrial Relations Film Library,  
distributed by National Film  
Board)

N.S.:—Dept. of Development  
Que.:—Dept. of Intergovernmental  
Affairs  
Alta.:—Dept. of Federal and Inter-  
governmental Affairs

Nfld.:—Dept. of Education (Parents'  
subsidy)  
N.S.:—Dept. of Public Welfare  
Que.:—Dept. of Social Affairs  
B.C.:—Dept. of Rehabilitation and  
Social Improvement

Nfld.:—Dept. of Mines, Agriculture,  
and Resources  
P.E.I.:—Dept. of Agriculture and  
Forestry  
N.S., N.B.:—Dept. of Agriculture  
Que.:—Dept. of Agriculture and  
Colonization  
Dept. of Industry and Commerce,  
Bureau of Statistics  
Ont.:—Dept. of Agriculture and  
Food  
Man.:—Dept. of Agriculture, Soils  
and Crops Branch  
Sask., Alta.:—Dept. of Agriculture,  
Plant Industry Division  
B.C.:—Dept. of Agriculture, Field  
Crops Branch

Nfld., P.E.I., N.B.:—Purchase films  
but do not produce them  
N.S., Alta., B.C.:—Produce educa-  
tional or informational films  
Que.:—Dept. of Communications,  
Radio Quebec  
Dept. of Cultural Affairs, Film  
Bureau  
Ont.:—Dept. of Tourism and Infor-  
mation, Theatres Branch and  
Photography Branch (*Films are  
available to the public from  
several other departments.*)  
Man.:—Dept. of Youth and Educa-  
tion  
Dept. of Agriculture  
Sask.:—Dept. of Industry and Com-  
merce  
Dept. of Education, Visual Edu-  
cation Branch  
Alta.:—Dept. of Industry, Film and  
Photographic Branch



Sources for Federal Data	Subject	Sources for Provincial Data
Dept. of Manpower and Immigration (Information Service) Dept. of National Health and Welfare Information Services National Capital Commission Information Services National Museums of Canada National Gallery of Canada (library of films on art) National Science Film Library (administered by the Canadian Film Institute, 2000 films on world scientific developments) Post Office Department Public Affairs Branch (stamps and postal services)	<div>FILM PRODUCTION and LIBRARIES —concluded</div>	B.C.:—Dept. of Travel Industry, Photographic Branch  <i>(All provinces have Motion Picture            Censorship Boards. Details available            from: Depts. of Education and Travel,            Provincial Censorship Boards and            National Film Board Regional Offices.)</i>
Dept. of Finance Bank of Canada Information Canada, Publishing Di- vision (agent for GATT publica- tions) Treasury Board Statistics Canada	<div>FINANCE See also "Taxation"</div>	Nfld., P.E.I., N.S., N.B., Man., B.C.:—Dept. of Finance Que.:—Dept. of Finance Dept. of Industry and Commerce, Bureau of Statistics Ont.:—Dept. of Revenue Sask.:—Treasury Dept. Alta.:—Provincial Treasurer
Dept. of the Environment Information and Consumer Branch (forest fire prevention and forest products fire retardants) Canadian Transport Commission Railway Committee (forest fire protection along railway lines) Dept. of Indian Affairs and Northern Development (Y.T. and N.W.T., Indian reserves, national parks) Dept. of Public Works Dominion Fire Commissioner National Research Council Division of Building Research Fire Research Section National Film Board	<div>FIRE PREVENTION</div>	All Provinces:—Provincial Fire Marshals (for urban and rural fire losses) Nfld.:—Dept. of Mines, Agriculture, and Resources P.E.I.:—Dept. of Community Ser- vices N.S.:—Dept. of Labour N.B.:—Dept. of Natural Resources Dept. of Attorney General Que.:—Dept. of Lands and Forests, Forest Protection Service Dept. of Municipal Affairs, Fire Commissioner Ont.:—Dept. of Lands and Forests, Forest Protection Branch Dept. of Attorney General, Office of the Fire Marshal Man.:—Dept. of Mines, Resources and Environmental Management (fire control officers) Dept. of Labour, Fire Prevention Division Sask.:—Dept. of Natural Resources Dept. of Labour, Fire Commis- sioner Alta.:—Dept. of Lands and Forests Dept. of Labour B.C.:—Dept. of Lands, Forests and Water Resources
Dept. of the Environment Information and Consumer Branch Dept. of Consumer and Corporate Affairs (retail inspection) Dept. of Finance (Fisheries Improve- ment Loans Act) Dept. of Indian Affairs and Northern Development (Y.T., N.W.T., Indian reserves, national parks) Dept. of Industry, Trade and Com- merce Agriculture, Fisheries and Food Products Branch Dept. of Veterans Affairs (veterans settled as commercial fishermen) Fisheries Research Board of Canada Information Canada, Publishing Di- vision (agent for FAO publica- tions) National Museums of Canada Unemployment Insurance Commis- sion (insurance for fishermen) National Film Board Statistics Canada	<div>FISHERIES</div>	Nfld., P.E.I., N.S.:—Dept. of Fisheries N.B.:—Dept. of Fisheries and En- vironment Que.:—Dept. of Tourism, Game and Fish Dept. of Industry and Commerce, Bureau of Statistics, Fisheries Branch Ont., Alta.:—Dept. of Lands and Forests, Fish and Wildlife Branch Man.:—Dept. of Mines, Resources and Environmental Manage- ment, Field Operations Division Sask.:—Dept. of Natural Resources, Fisheries Branch B.C.:—Dept. of Recreation and Conservation Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics

Sources for Federal Data

Subject

Sources for Provincial Data

Dept. of National Health and Welfare, Food and Drug Directorate (for standards and methods of control of quality, purity and safety of food and drugs)  
 Dept. of Agriculture (buying, using, and standards for fresh and processed agricultural products)  
 Information Division  
 Food Advisory Services  
 Dept. of Consumer and Corporate Affairs  
 Patent and Copyright Office (licensing of patents)  
 Bureau of Consumer Affairs (economic aspects of labelling and advertising food; retail inspection)  
 Dept. of the Environment  
 Fisheries Service  
 Dept. of Industry, Trade and Commerce  
 Agriculture, Fisheries and Food Products Branch  
 Chemicals Branch  
 Information Canada, Publishing Division (agent for FAO and WHO publications)  
 National Film Board

**FOOD  
AND DRUGS**  
 See also  
 "Nutrition"

All Provinces:—Dept. of Health (sanitary inspection of food supplies)

**FOREIGN AFFAIRS**  
 See  
 "External Affairs"

Dept. of the Environment  
 Information and Consumer Branch  
 Dept. of Indian Affairs and Northern Development (Y.T., N.W.T., Indian reserves)  
 Dept. of Industry, Trade and Commerce  
 Wood Products Branch  
 Machinery Branch  
 Mechanical Transport Branch  
 Information Canada, Publishing Division (agent for FAO publications)  
 National Film Board  
 Statistics Canada

**FOREST  
RESOURCES  
AND  
INDUSTRIES**

Nfld.:—Dept. of Mines, Agriculture and Resources  
 P.E.I.:—Dept. of Agriculture and Forestry  
 N.S., Ont., Alta.:—Dept. of Lands and Forests  
 N.B.:—Dept. of Natural Resources  
 Que.:—Dept. of Lands and Forests  
 Dept. of Industry and Commerce, Bureau of Statistics  
 Man.:—Dept. of Mines, Resources and Environmental Management  
 Sask.:—Dept. of Natural Resources, Forestry Branch  
 Dept. of Industry and Commerce  
 Saskatchewan Timber Board  
 B.C.:—Dept. of Lands, Forests and Water Resources  
 Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics

**FUEL**  
 See "Coal", "Oil  
and Natural Gas"  
 and "Electric  
Power"

Sources for Federal Data	Subject	Sources for Provincial Data
Dept. of Agriculture Production and Marketing Branch, Livestock Division Dept. of Indian Affairs and Northern Development Statistics Canada	<div>FUR FARMING</div> <div>See also</div> <div>"Trapping"</div>	Nfld.:—Dept. of Mines, Agriculture and Resources Dept. of Economic Development P.E.I.:—Dept. of Agriculture and Forestry N.S., N.B., Man., Alta., B.C.:— Dept. of Agriculture Que.:—Dept. of Agriculture and Colonization Dept. of Industry and Commerce, Bureau of Statistics Ont.:—Dept. of Lands and Forests Sask.:—Dept. of Natural Resources Saskatchewan Fur Marketing Service
Dept. of Energy, Mines and Re- sources Public Relations and Information Services Dept. of Agriculture Soils Research Institute Dept. of the Environment Information and Consumer Branch Dept. of Indian Affairs and Northern Development (Y.T., N.W.T., national parks) Fisheries Research Board of Canada (oceanography) National Library (books) Public Archives (maps; history of cartography) National Film Board	<div>GEOGRAPHY</div>	Nfld.:—Dept. of Mines, Agriculture and Resources P.E.I.:—Travel Bureau N.S.:—Dept. of Mines N.B.:—Dept. of Natural Resources Que.:—Dept. of Lands and Forests Dept. of Industry and Commerce, Drafting Division Dept. of Natural Resources Northern Studies Centre, Univer- sité Laval Ont.:—Dept. of Lands and Forests, Lands and Surveys Branch Man.:—Dept. of Mines, Resources and Environmental Manage- ment, Surveys Branch Sask.:—Dept. of Natural Resources Dept. of Industry and Commerce Alta.:—Dept. of Lands and Forests University of Alberta B.C.:—Dept. of Lands, Forests and Water Resources
Dept. of Energy, Mines and Re- sources Geological Survey of Canada Dept. of Indian Affairs and Northern Development (Y.T., N.W.T., national parks) National Museums of Canada National Film Board	<div>GEOLOGY</div>	Nfld.:—Dept. of Mines, Agriculture and Resources P.E.I.:—Dept. of Industry and Com- merce N.S.:—Dept. of Mines N.B.:—Dept. of Natural Resources Que.:—Dept. of Natural Resources, Geological Surveys Branch Ont.:—Dept. of Mines, Geological Branch Man.:—Dept. of Mines, Resources and Environmental Manage- ment, Geology Division Sask.:—Dept. of Mineral Resources Alta.:—Dept. of Mines and Minerals University of Alberta B.C.:—Dept. of Mines and Petro- leum Resources
Dept. of the Secretary of State (federal-provincial channel of communication) Chief Electoral Office (Electoral Act and voters lists) Dept. of Indian Affairs and Northern Development (Y.T. and N.W.T.) Public Information Adviser Information Canada, Publishing Di- vision (Daily Checklist of Gov- ernment Publications and distri- bution and sale of statutory orders and regulations)	<div>GOVERNMENT</div> <div>For Senate and</div> <div>House of Commons</div> <div>of Canada</div> <div>see "Parliament"</div>	Nfld.:—Dept. of Provincial Affairs P.E.I., N.S., N.B., Ont., B.C.:— Dept. of Provincial Secretary Que.:—Dept. of Intergovernmental Affairs National Assembly

Sources for Federal Data

Subject

Sources for Provincial Data

Library of Parliament  
Privy Council Office (appointments, orders in council, statutory orders and regulations)  
Public Archives (early official records)  
Public Service Commission (staffing the public service)  
Treasury Board Secretariat (personnel policy, collective bargaining, main estimates)  
National Film Board

**GOVERNMENT**  
—concluded

Man., Alta.:—Executive Council  
Sask.:—Dept. of Provincial Secretary  
Executive Councils

Dept. of National Health and Welfare  
Information Canada, Publishing Division (agent for WHO publications)  
National Film Board  
Statistics Canada

**HEALTH AND MEDICAL INSURANCE**

Nfld.:—Dept. of Health, Medical Care Commission  
P.E.I., N.B., Ont.:—Dept. of Health  
N.S.:—Dept. of Public Health, Medical Care Insurance Commission  
Que.:—Dept. of Social Affairs  
Man.:—Dept. of Health and Social Development  
Medical Services Insurance Corporation  
Sask.:—Dept. of Public Health  
Saskatchewan Medical Care Commission  
Saskatchewan Cancer Commission  
Alta.:—Dept. of Health and Social Development  
B.C.:—Dept. of Health Services and Hospital Insurance

Public Archives  
National Library  
Dept. of Indian Affairs and Northern Development  
Government of the Yukon Territory (Whitehorse, Y.T.)  
Government of the Northwest Territories (Yellowknife, N.W.T.)  
Dept. of National Defence  
Directorate of History  
Dept. of Veterans Affairs (war memorials and war cemeteries)  
Ministry of Transport  
Marine Services Historian  
National Capital Commission  
Information Services  
National Museums of Canada  
Post Office Department  
Philatelic Museum  
National Film Board  
Statistics Canada

**HISTORY**

Nfld.:—Legislative Library  
Memorial University  
Gosling Memorial Library  
Dept. of Provincial Affairs, Public Archives and Museum  
P.E.I.:—Executive Council Secretariat  
N.S.:—Public Archives, Legislative Library  
N.B.:—Dept. of Education (historical resources)  
Que.:—National Assembly Library  
Dept. of Cultural Affairs, Quebec Archives, National Library of Quebec  
Ont.:—Legislative Library  
Dept. of Tourism and Information, Historical Branch  
Dept. of Public Records and Archives  
Man.:—Provincial Library and Archives  
Sask.:—Legislative Library  
Saskatchewan Archives Board  
Alta.:—Dept. of Culture, Youth and Recreation, Provincial Library, Provincial Museum and Archives  
B.C.:—Dept. of Provincial Secretary, Provincial Librarian and Archivist

Dept. of Agriculture  
Production and Marketing Branch (grading and inspection)  
Fruit and Vegetable Division  
Plant Products Division  
Plant Protection Division  
Research Branch  
Plant Research Institute  
Information Canada, Publishing Division (agent for FAO publications)

**HORTICULTURE**

Nfld.:—Dept. of Mines, Agriculture and Resources  
P.E.I.:—Dept. of Agriculture and Forestry  
N.S., N.B., Man., B.C.:—Dept. of Agriculture, Horticultural Branch  
Que.:—Dept. of Agriculture and Colonization, Horticultural Branch  
Ont.:—Dept. of Agriculture and Food  
Sask.:—Dept. of Agriculture, Plant Industry Branch  
Alta.:—Dept. of Agriculture, Plant Industry Division



Sources for Federal Data	Subject	Sources for Provincial Data
Dept. of National Health and Welfare Dept. of National Defence Office of the Surgeon General Dept. of Veterans Affairs (veterans hospitals) Information Canada, Publishing Division (agent for WHO publications) Statistics Canada	HOSPITALS AND HOSPITAL INSURANCE	Nfld., N.B.:—Dept. of Health P.E.I., N.S.:—Hospital Insurance Commission Que.:—Dept. of Social Affairs Ont.:—Hospital Services Commission Man.:—Manitoba Health Services Commission Sask.:—Dept. of Public Health Alta.:—Dept. of Health and Social Development B.C.:—Dept. of Health Services and Hospital Insurance
	HOUSE OF COMMONS See "Parliament"	
Central Mortgage and Housing Corporation (National Housing Act financing; loans and subsidies for housing) Dept. of Indian Affairs and Northern Development (housing in the North, Indian reserves, national parks) Dept. of Veterans Affairs (home construction assistance for veterans) National Research Council Division of Building Research (construction materials, building codes and practices, soil and snow mechanics, housing standards) National Film Board Statistics Canada	HOUSING	Nfld.: Newfoundland and Labrador Housing Corporation P.E.I.:—Prince Edward Island Housing Authority N.S.:—Nova Scotia Housing Commission N.B.:—New Brunswick Housing Corporation Que.:—Quebec Housing Corporation Ont.:—Ontario Housing Corporation Man.:—Manitoba Housing and Renewal Corporation Sask., B.C.:—Dept. of Municipal Affairs, Housing and Urban Renewal Branch Alta.:—Alberta Housing Corporation
Dept. of Manpower and Immigration Canada Immigration Division Dept. of National Health and Welfare Quarantine, Immigration Medical and Sick Mariners Division Family Allowances, Youth Allowances, Old Age Security Division Statistics Canada	IMMIGRATION	Que.:—Dept. of Immigration Ont.:—Dept. of Trade and Development, Immigration Branch Man.:—Dept. of Industry and Commerce Sask.:—Dept. of Labour Executive Council Alta.:—Dept. of Labour B.C.:—British Columbia House, London, England, and San Francisco and Los Angeles, California
	INCOME TAX See "Taxation"	
Dept. of Consumer and Corporate Affairs Corporations Branch	INCORPORATION OF COMPANIES AND ASSOCIATIONS	Nfld.:—Dept. of Justice, Registry of Justice P.E.I., N.S., N.B., Sask.:—Dept. of Provincial Secretary Que.:—Dept. of Financial Institutions, Companies and Co-operatives Ont.:—Dept. of Financial and Commercial Affairs Man.:—Dept. of Consumer, Corporate and Internal Services, Companies and Business Names Registration Branch Alta.:—Dept. of Attorney General B.C.:—Dept. of Attorney General Registrar of Companies

Sources for Federal Data	Subject	Sources for Provincial Data
Dept. of Indian Affairs and Northern Development Public Information Adviser Dept. of Manpower and Immigration Manpower Utilization Branch, Program Development Service Dept. of National Health and Welfare Medical Services Branch Dept. of the Secretary of State Citizenship Development Branch, Native Peoples Division National Museums of Canada National Film Board	INDIANS	Nfld.:—Dept. of Social Services and Rehabilitation (Indians in Labrador) Dept. of Labrador Affairs P.E.I.:—Executive Council Secretariat N.S.:—Dept. of Municipal Affairs Que.:—Dept. of Natural Resources, New Quebec Branch Ont.:—Dept. of Provincial Secretary and Citizenship Man.:—Dept. of Health and Social Development, Director of Social Services Sask.:—Saskatchewan Indian and Metis Department Alta.:—Human Resources Development Authority B.C.:—Provincial Secretary, Director, Indian Advisory Act
Dept. of Industry, Trade and Commerce National Design Council Canada Council Dept. of Consumer and Corporate Affairs Patent and Copyright Office National Film Board	INDUSTRIAL DESIGN	P.E.I., Que.:—Dept. of Industry and Commerce Ont.:—Dept. of Trade and Development Man.:—Dept. of Industry and Commerce, Manitoba Design Institute
Dept. of Labour Conciliation and Arbitration Branch Economics and Research Branch Employee Representation Branch Labour-Management Consultation Branch Public Relations and Information Services	INDUSTRIAL RELATIONS	
Dept. of Labour Accident Prevention and Compensation Branch Atomic Energy Control Board Dept. of Energy, Mines and Resources Mines Branch Dept. of National Health and Welfare National Film Board	INDUSTRIAL SAFETY	All Provinces:—Dept. of Labour or Workmen's Compensation Board
Dept. of Insurance (Canadian, British and foreign companies and fraternal benefit societies, Public Service Insurance) Central Mortgage and Housing Corporation (insures loans made under National Housing Act) Dept. of Agriculture (crop insurance) Dept. of Industry, Trade and Commerce Export Development Corporation Dept. of National Health and Welfare Canada Pension Plan Dept. of Veterans Affairs Veterans Welfare Services Unemployment Insurance Commission Annuities Branch Statistics Canada (summary statistics of many types of insurance)	INSURANCE— LIFE, FIRE, ETC. For Unemployment Insurance see "Labour" and for Hospital Insurance "Hospitals and Hospital Insurance"	Nfld.:—Dept. of Provincial Affairs, Superintendent of Insurance P.E.I., N.S., Sask.:—Dept. of Provincial Secretary, Superintendent of Insurance N.B.:—Dept. of Justice, Superintendent of Insurance Que.:—Dept. of Financial Institutions, Companies and Co-operatives, Insurance Branch Ont.:—Dept. of Financial and Commercial Affairs, Superintendent of Insurance Man.:—Dept. of Finance, Superintendent of Insurance Manitoba Crop Insurance Corporation Alta., B.C.:—Dept. of Attorney General, Superintendent of Insurance

Sources for Federal Data	Subject	Sources for Provincial Data
Dept. of Energy, Mines and Resources Mines Branch Mineral Resources Branch Dept. of Industry, Trade and Commerce Office of Economics Materials Branch National Film Board Statistics Canada	IRON AND STEEL	Nfld.:—Dept. of Mines, Agriculture and Resources N.S.:—Dept. of Mines Research Foundation N.B.:—Dept. of Natural Resources Que.:—Dept. of Industry and Commerce, Bureau of Statistics Dept. of Natural Resources Ont.:—Dept. of Trade and Development, Trade and Industry Branch Man.:—Dept. of Industry and Commerce Sask.:—Dept. of Mineral Resources Dept. of Industry and Commerce Alta.:—Dept. of Mines and Minerals Dept. of Industry Research Council of Alberta B.C.:—Dept. of Mines and Petroleum Resources Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics
Dept. of Justice Dept. of Indian Affairs and Northern Development (Y.T. and N.W.T.) Information Canada, Publishing Division (agent for International Court of Justice publications) Statistics Canada	JUSTICE	All Provinces except Nfld., P.E.I., N.B. and Que.:—Dept. of Attorney General Nfld., N.B., Que.:—Dept. of Justice P.E.I.:—Dept. of Justice and Attorney General
Dept. of Labour Canada Labour Relations Board Conciliation and Arbitration Branch (conciliation of labour disputes) Economics and Research Branch Employee Representation Branch (certification of bargaining agents) Fair Employment Practices Branch (promotion of fair employment practices) International Labour Affairs Branch Labour-Management Consultation Branch (promotion of labour management co-operation) Labour Standards Branch Legislative Research Branch Library Services Branch Public Relations and Information Services Women's Bureau Company of Young Canadians Dept. of Indian Affairs and Northern Development (Y.T. and N.W.T.) Personnel Adviser Dept. of National Health and Welfare (occupational health) Information Canada, Publishing Division (agent for International Labour Office publications) National Research Council Division of Administration and Personnel (recruitment and salary levels of scientific and technical personnel) Treasury Board (the Federal Public Service) Unemployment Insurance Commission National Film Board Statistics Canada	LABOUR, WAGES AND WORKING CONDITIONS	Nfld., P.E.I., N.S., N.B., Man., Sask., Alta.:—Dept. of Labour Que.:—Dept. of Labour and Manpower Dept. of Industry and Commerce, Bureau of Statistics Ont.:—Dept. of Labour Dept. of Treasury and Economics B.C.:—Dept. of Labour Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics

Sources for Federal Data

Subject

Sources for Provincial Data

Dept. of Energy, Mines and Resources  
 Surveys and Mapping Branch  
 Dept. of Agriculture  
 Economics Branch  
 Dept. of Indian Affairs and Northern Development (Crown lands in Y.T. and N.W.T., Indian reserve lands, land owned by the Federal Government in the provinces)  
 Dept. of Public Works  
 Land Services Branch  
 Dept. of Veterans Affairs  
 Veterans Land Administration  
 Public Archives (early data re settlement)

LANDS AND  
 LAND  
 SETTLEMENT

Nfld.:—Dept. of Mines, Agriculture and Resources  
 P.E.I.:—Dept. of Agriculture and Forestry  
 N.S.:—Dept. of Agriculture, Nova Scotia Farm Loan Board  
 N.B.:—Dept. of Natural Resources  
 Que.:—Dept. of Lands and Forests  
 Dept. of Agriculture and Colonization  
 Ont., Alta.:—Dept. of Lands and Forests  
 Man.:—Dept. of Mines, Resources and Environmental Management, Lands Branch  
 Sask.:—Dept. of Agriculture, Lands Branch  
 Attorney General, Land Titles  
 B.C.:—Dept. of Lands, Forests, and Water Resources

Dept. of Solicitor General  
 Royal Canadian Mounted Police (*Enforces Federal Statutes in all parts of Canada; in the provinces, exclusive of Quebec and Ontario, it carries out, under contract, enforcement of the Criminal Code and Provincial Statutes and polices a number of municipalities; it is the only law-enforcement body in the Y.T. and N.W.T.*)

LAW  
 ENFORCEMENT

All Provinces except Nfld., P.E.I. and Que.:—Dept. of Attorney General  
 Nfld., Que.:—Dept. of Justice  
 P.E.I.:—Dept. of Justice and Attorney General

Library of Parliament  
 Dept. of Justice  
 Information Canada, Publishing Division (Daily Checklist of Government Publications, distribution and sale of the Statutes of Canada and texts of federal legislation)  
 Privy Council Office

LEGISLATION  
 For  
 Statutory Orders  
 and Regulations  
 see "Government"

All Provinces except Nfld., P.E.I. and B.C.:—Dept. of Attorney General  
 Additional:—N.S., Ont., Man. and Alta.:—Queen's Printer (distribution and sale of the Statutes and various Acts)  
 Nfld.:—Dept. of Justice  
 P.E.I.:—Dept. of Provincial Secretary, Queen's Printer  
 Man., Sask.:—Executive Council  
 B.C.:—Dept. of Provincial Secretary

LIBRARIES  
 See "Bibliography"

Chief Electoral Office (for local referendum under Canada Temperance Act)  
 Dept. of Indian Affairs and Northern Development  
 Statistics Canada

LIQUOR  
 CONTROL

Nfld.:—Board of Liquor Control  
 P.E.I., Man.:—Liquor Control Commissions  
 N.S.:—Liquor Commission, Liquor Licence Board  
 N.B., Ont., Alta., B.C.:—Liquor Control Board  
 Que.:—Liquor Board  
 Sask.:—Liquor Board, Liquor Licensing Commission

Dept. of Agriculture  
 Production and Marketing Branch  
 Livestock Division  
 Health of Animals Branch  
 Contagious Diseases Division  
 Meat Inspection Division  
 Animal Pathology Division  
 Research Branch  
 Animal Research Institute  
 Dept. of Industry, Trade and Commerce  
 Agriculture, Fisheries and Food Products Branch  
 Information Canada, Publishing Division (agent for FAO publications)  
 National Film Board  
 Statistics Canada

LIVESTOCK

Nfld.:—Dept. of Mines, Agriculture and Resources  
 P.E.I.:—Dept. of Agriculture and Forestry  
 N.S.:—Dept. of Agriculture, Animal Husbandry Branch  
 N.B., Alta., B.C.:—Dept. of Agriculture, Livestock Branch  
 Que.:—Dept. of Agriculture and Colonization, Animal Products Branch  
 Dept. of Industry and Commerce, Bureau of Statistics  
 Ont.:—Dept. of Agriculture and Food, Livestock Branch  
 Man., Sask.:—Dept. of Agriculture, Animal Industry Branch



<u>Sources for Federal Data</u>	<u>Subject</u>	<u>Sources for Provincial Data</u>
Dept. of Industry, Trade and Commerce Publicity Branch Office of Design Adviser of the Industrial Policy Bank of Canada Industrial Development Bank Dept. of Consumer and Corporate Affairs Corporations Branch Dept. of Finance (Small Businesses Loans Act) Dept. of Indian Affairs and Northern Development Indian-Eskimo Economic Development Branch Dept. of Regional Economic Expansion National Research Council Canadian Patents and Development Limited (utilization of new scientific processes) Technical Information Service (answering queries from industry on problems of technology and productivity) National Film Board Statistics Canada	<div>MANUFACTURING</div> <div>See also "Crown Corporations"</div>	Nfld.:—Dept. of Community and Social Development P.E.I.:—Dept. of Industry and Commerce N.S.:—Dept. of Development N.B.:—Dept. of Economic Growth Que.:—Dept. of Industry and Commerce, Bureau of Statistics Ont.:—Dept. of Trade and Development, Trade and Industry Division Man., Sask.:—Dept. of Industry and Commerce Alta.:—Dept. of Industry Alberta Bureau of Statistics B.C.:—Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics
Dept. of Energy, Mines and Resources Surveys and Mapping Branch Geological Survey Earth Physics Branch Dept. of Agriculture (soil survey and economic survey maps) Dept. of the Environment Information and Consumer Branch (fisheries and forestry maps) Marine Sciences Branch (marine charts) Information Canada, Publishing Division National Capital Commission National Research Council Division of Building Research (Climatological Atlas) Public Archives (maps relating to history and cartography) Statistics Canada (economic and census maps)	<div>MAPS AND CHARTS</div>	Nfld.:—Dept. of Mines, Agriculture and Resources P.E.I.:—Land Use Planning N.S.:—Dept. of Mines Nova Scotia Research Foundation N.B.:—Dept. of Natural Resources Dept. of Economic Growth Que.:—Dept. of Lands and Forests Dept. of Natural Resources Dept. of Industry and Commerce, Economic Cartography Dept. of Agriculture and Colonization, Planning Branch Ont.:—Dept. of Mines Dept. of Lands and Forests Dept. of Highways Dept. of Tourism and Information Man.:—Dept. of Mines, Resources and Environmental Management, Surveys Branch Sask.:—Dept. of Natural Resources Dept. of Industry and Commerce Alta.:—Dept. of Lands and Forests Alberta Travel Bureau Dept. of Highways, Surveys Branch B.C.:—Dept. of Lands, Forests, and Water Resources
Dept. of Industry, Trade and Commerce Market Analysis Branch Publicity Branch Industry, Trade and Traffic Services Branch Dept. of Agriculture Production and Marketing Branch Economics Branch Dept. of Consumer and Corporate Affairs Bureau of Consumer Affairs Dept. of Indian Affairs and Northern Development Indian-Eskimo Economic Development Branch, Arts and Crafts Marketing Section Statistics Canada	<div>MARRIAGES</div> <div>See "Vital Statistics"</div>	
	<div>MERCHANDISING</div>	P.E.I., Man., Sask.:—Dept. of Industry and Commerce Ont.:—Dept. of Trade and Development Alta.:—Dept. of Industry B.C.:—Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics

Sources for Federal Data

Subject

Sources for Provincial Data

Dept. of Energy, Mines and Resources  
Mines Branch  
Mineral Resources Branch  
Dept. of Industry, Trade and Commerce  
Materials Branch  
Office of Economics  
National Film Board  
Statistics Canada (for production data)

**METALS**  
See also  
"Iron and Steel"

Nfld.:—Dept. of Mines, Agriculture and Resources  
N.S., Ont.:—Dept. of Mines  
N.B., Que.:—Dept. of Natural Resources  
Man.:—Dept. of Mines, Resources and Environmental Management, Mines Branch  
Sask.:—Dept. of Mineral Resources  
Dept. of Industry and Commerce  
Alta.:—Dept. of Industry, Alberta Research Council  
B.C.:—Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics  
Dept. of Mines and Petroleum Resources

Dept. of Energy, Mines and Resources  
Geological Survey of Canada  
Mines Branch  
Mineral Resources Branch  
Dept. of Indian Affairs and Northern Development (Y.T., N.W.T., Indian reserves)  
Dept. of Industry, Trade and Commerce  
Materials Branch  
Machinery Branch  
National Museums of Canada  
National Film Board  
Statistics Canada (for production data)

**MINING AND MINERALS**

Nfld.:—Dept. of Mines, Agriculture and Resources  
P.E.I.:—Dept. of Industry and Commerce  
N.S., Ont.:—Dept. of Mines  
N.B., Que.:—Dept. of Natural Resources  
Man.:—Dept. of Mines, Resources and Environmental Management, Mines Branch  
Sask.:—Dept. of Mineral Resources  
Alta.:—Dept. of Mines and Minerals  
B.C.:—Dept. of Mines and Petroleum Resources

Statistics Canada  
Governments Division  
Dept. of Finance (municipal grants)  
Dept. of Indian Affairs and Northern Development (Y.T. and N.W.T., Indian reserves, national parks)

**MUNICIPAL AFFAIRS**

Nfld.:—Dept. of Municipal Affairs and Housing  
P.E.I.:—Dept. of Community Services  
N.S., N.B., Ont., Man., Sask., Alta., B.C.:—Dept. of Municipal Affairs  
Que.:—Dept. of Municipal Affairs, Industry Branch  
Planning Bureau

National Museums of Canada  
Museum of Natural Sciences  
Museum of Man  
Museum of Science and Technology  
National Gallery of Canada (works of art)  
Dept. of Indian Affairs and Northern Development (national historic parks and sites, national parks and Indian reserves)  
Information Canada, Publishing Division (agent for UNESCO publications)  
Public Archives (historical)

**MUSEUMS**

Nfld.:—Dept. of Provincial Affairs  
P.E.I.:—Executive Council Secretariat  
N.S.:—Nova Scotia Museum of Fine Arts, Public Archives of Nova Scotia, Provincial Museum of Nova Scotia, Halifax  
N.B.:—New Brunswick Museum, Saint John  
Que.:—Dept. of Cultural Affairs, Quebec Archives, Musée du Québec, Quebec Commercial and Industrial Museum of Montreal  
Ont.:—Royal Ontario Museum, Art and Archaeology, Life Sciences and Earth Sciences Divisions  
Dept. of Public Records and Archives  
Man.:—Manitoba Museum of Man and Nature  
Sask.:—Dept. of Natural Resources, Museum of Natural History, Regina  
Western Development Museum, Saskatoon  
Alta.:—Dept. of Culture, Youth and Recreation, Provincial Museum, Edmonton

Sources for Federal Data	Subject	Sources for Provincial Data
	MUSEUMS—concl.	B.C.:—Provincial Museum of Natural History and Anthropology, Provincial Archives (including Helmcken House), Victoria Also provincial universities of Sask., Alta. and B.C.
Statistics Canada	NATIONAL ACCOUNTS	Que.:—Dept. of Industry and Commerce, Bureau of Statistics
Ministry of Transport Marine Services (aids to marine navigation) Public Affairs Canadian Transport Commission Dept. of Communications (radio aids to navigation) Dept. of the Environment Canadian Hydrographic Service Dept. of Public Works Information Services (dredging and marine construction) National Harbours Board National Research Council Radio and Electrical Engineering Division (applications of radar to navigation) Division of Mechanical Engineering (model-testing basin and hydraulic models) St. Lawrence Seaway Authority (St. Lawrence-Great Lakes canals)	NAVIGATION	
Dept. of National Health and Welfare Nutrition Division Information Canada, Publishing Division (agent for FAO and WHO publications) National Film Board	NUTRITION	Nfld., P.E.I., N.B.:—Dept. of Health N.S.:—Dept. of Public Health, Nutrition Division Que.:—Dept. of Social Affairs Ont.:—Dept. of Health, Nutrition Service Dept. of Agriculture and Food, Home Economics Service Man.:—Dept. of Health and Social Development, Health Education Services Sask.:—Dept. of Public Health Alta.:—Dept. of Agriculture Dept. of Health and Social Development B.C.:—Dept. of Health Services and Hospital Insurance
Dept. of Manpower and Immigration Canada Manpower Centres Dept. of Indian Affairs and Northern Development	OCCUPATIONAL TRAINING	Nfld.:—Dept. of Education N.S.:—Dept. of Education Dept. of Labour Man.:—Dept. of Youth and Education Alta.:—Dept. of Labour Dept. of Advanced Education B.C.:—Dept. of Labour
Dept. of Energy, Mines and Resources Atlantic Geosciences Centre Dept. of the Environment Marine Sciences Branch Dept. of Industry, Trade and Commerce Aerospace, Marine and Rail Branch Dept. of National Defence Defence Research Board Fisheries Research Board of Canada National Museums of Canada National Research Council Atlantic Regional Laboratory, Halifax, N.S. (application of scientific agriculture to the cultivation of seaweeds)	OCEANOGRAPHY	Nfld.:—Dept. of Mines, Agriculture and Resources P.E.I.:—Dept. of Fisheries N.S.:—Nova Scotia Research Foundation Que.:—Dept. of Industry and Commerce Marine Biological Station of Grande Rivière Fisheries Training School B.C.:—Institute of Oceanography, University of British Columbia

Sources for Federal Data

Subject

Sources for Provincial Data

Dept. of Energy, Mines and Resources  
Energy Development Sector  
Geological Survey of Canada  
Mines Branch  
Dept. of Indian Affairs and Northern Development (Y.T., N.W.T., Indian reserves)  
Dept. of Industry, Trade and Commerce  
Chemicals Branch  
National Energy Board  
National Film Board  
Statistics Canada

OIL AND  
NATURAL GAS

Nfld.:—Dept. of Mines, Agriculture and Resources  
P.E.I.:—Dept. of Industry and Commerce  
N.S.:—Dept. of Mines  
N.B.:—Dept. of Natural Resources  
Que.:—Dept. of Natural Resources, Electricity and Gas Board  
Ont.:—Dept. of Energy and Resources Management  
Man.:—Dept. of Mines, Resources and Environmental Management, Mines Branch  
Sask.:—Dept. of Mineral Resources  
Saskatchewan Power Corporation  
Dept. of Industry and Commerce  
Alta.:—Dept. of Mines and Minerals, Energy Resources Conservation Board, Calgary or Edmonton  
Alberta Bureau of Statistics  
B.C.:—Dept. of Mines and Petroleum Resources

Dept. of National Health and Welfare

OLD AGE  
SECURITY AND  
GUARANTEED  
INCOME  
SUPPLEMENT

Dept. of Indian Affairs and Northern Development (national parks, national historic parks and sites)  
Dept. of Public Works  
Information Services (highway construction and development)  
Dept. of Regional Economic Expansion (land use projects under ARDA)  
National Capital Commission (urban parks and Gatineau Park)  
National Film Board

PARKS

Nfld.:—Dept. of Mines, Agriculture and Resources  
P.E.I.:—Dept. of the Environment and Tourism  
N.S., Alta.:—Dept. of Lands and Forests  
N.B.:—Dept. of Natural Resources  
Dept. of Tourism  
Que.:—Dept. of Tourism, Game and Fish  
Ont.:—Dept. of Tourism and Information  
Dept. of Lands and Forests, Parks Branch  
Dept. of Energy and Resources Management, Conservation Branch  
Man.:—Dept. of Tourism, Recreation and Cultural Affairs, Parks Branch  
Sask.:—Dept. of Natural Resources  
Dept. of Industry and Commerce  
B.C.:—Dept. of Recreation and Conservation

Library of Parliament  
Information Canada, Publishing Division (Daily Checklist of Government Publications)  
Office of the President of the Privy Council  
National Film Board

PARLIAMENT

Nfld.:—Dept. of Provincial Affairs  
P.E.I., N.B., Sask., B.C.:—Legislative Assembly  
N.S.:—Clerk of the Legislative Assembly  
Que.:—National Assembly  
Ont., Alta.:—Legislative Assembly  
Clerk of the Legislative Assembly  
Man.:—Executive Council

Dept. of External Affairs  
Passport Division

PASSPORTS



Sources for Federal Data	Subject	Sources for Provincial Data
Dept. of Consumer and Corporate Affairs Patent and Copyright Office Trade Marks Office Canadian Patents and Development Limited (licences available on patents from Government laboratories, etc.) National Library (handles all copy-right books)	PATENTS, COPY-RIGHTS AND TRADE MARKS	
Dept. of National Health and Welfare Canada Pension Plan Research and Statistics Directorate Bureau of Pensions Advocates Canadian Pension Commission (pensions to or in respect of veterans) Dept. of Insurance (Pension Benefits Standards Act) Dept. of Labour Pension and Insurance Research Advisory Services Dept. of National Revenue, Taxation Dept. of Supply and Services Superannuation Division Pension Review Board Statistics Canada (private pension plan statistics)	PENSIONS	Nfld.:—Dept. of Finance P.E.I., N.S., N.B., Man., B.C.:—Legislation governing private pension plans Que.:—Quebec Pension Board Ont.:—Ontario Pension Commission Sask.:—Dept. of Labour Superintendent of Pensions Alta.:—Superintendent of Pensions
National Film Board Central Mortgage and Housing Corporation Information Division Dept. of Energy, Mines and Resources Public Relations and Information Services Canada Centre for Remote Sensing National Air Photography Library Dept. of the Environment Information and Consumer Branch Dept. of Indian Affairs and Northern Development Public Information Adviser Dept. of Industry, Trade and Commerce Office of Tourism Dept. of National Health and Welfare Information Services Information Canada (still photo library and sales) National Capital Commission Information Services (related to the development of the National Capital Region) National Museums of Canada Public Archives (historical)	PHOTOGRAPHIC MATERIAL See also "Film Production and Libraries" and "Tourist Trade"	Nfld.:—Dept. of Supply and Services P.E.I.:—Dept. of the Environment and Tourism N.S.:—Dept. of Development Que.:—Dept. of Communications, Radio Quebec Dept. of Cultural Affairs, Film Bureau Man.:—Information Services Branch Sask.:—Dept. of Industry and Commerce Alta.:—Dept. of Industry, Film and Photographic Branch B.C.:—Dept. of Travel Industry, Photographic Branch  <i>(Photographs are available from many provincial government departments in all provinces.)</i>
Statistics Canada (for all census and estimated population statistics) Dept. of Indian Affairs and Northern Development Public Archives (early census and settlement records)	POPULATION	Nfld.:—Dept. of Health P.E.I.:—Island Information Services N.S.:—Dept. of Public Health, Vital Statistics Branch N.B.:—Dept. of Health, Vital Statistics Branch Que.:—Dept. of Social Affairs, Population Register Dept. of Industry and Commerce, Bureau of Statistics Ont.:—Dept. of Treasury and Economics Man.:—Dept. of Industry and Commerce Sask.:—Dept. of Public Health, Vital Statistics Division Legislative Library Alta.:—Dept. of Industry, Alberta Bureau of Statistics B.C.:—Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics

Sources for Federal Data	Subject	Sources for Provincial Data
Post Office Department Public Affairs Branch	POSTAL SERVICE	
Dept. of Agriculture Production and Marketing Branch Poultry Division Health of Animals Branch Contagious Diseases Division Meat Inspection Division Animal Pathology Division Research Branch Animal Research Institute Dept. of Consumer and Corporate Affairs (retail inspection) Dept. of Industry, Trade and Commerce Agriculture, Fisheries and Food Products Branch Information Canada, Publishing Division (agent for FAO publi- cations) Statistics Canada	POULTRY	Nfld.:—Dept. of Mines, Agriculture and Resources P.E.I.:—Dept. of Agriculture and Forestry N.S.:—Dept. of Agriculture N.B., Alta.:—Dept. of Agriculture, Poultry Branches Que.:—Dept. of Agriculture and Colonization, Animal Production Service Dept. of Industry and Commerce, Bureau of Statistics Ont.:—Ontario Agricultural College (Guelph), Poultry Division Man., Sask.:—Dept. of Agriculture B.C.:—Dept. of Agriculture, Poultry Division
Dept. of the Secretary of State State Protocol and Special Events Branch	PRECEDENCE AND CEREMONIAL	Nfld.:—Dept. of Provincial Affairs P.E.I., N.S., Ont., B.C.:—Dept. of Provincial Secretary N.B.:—Premier's Office (protocol office) Que.:—Executive Council, Chief of Protocol Man., Alta.:—Clerk of the Exec- utive Council
Statistics Canada Dept. of Agriculture Production and Marketing Branch Markets Information Agricultural Stabilization Board Fisheries Prices Support Board Information Canada, Publishing Division (agent for GATT pub- lications)	PRICES	Que.:—Dept. of Industry and Com- merce, Bureau of Statistics Ont.:—Dept. of Treasury and Economics Man., Sask.:—Dept. of Industry and Commerce Alta.:—Dept. of Industry, Alberta Bureau of Statistics B.C.:—Dept. of Industrial Develop- ment, Trade, and Commerce, Bureau of Economics and Sta- tistics
Dept. of Consumer and Corporate Affairs Registration Branch Information Canada, Publishing Division (Daily Checklist of Government Publications) Public Archives (early records)	PUBLIC DOCUMENTS (Commissions of Appointment, Proclamations, Land Grants, etc.)	Nfld.:—Dept. of Provincial Affairs Dept. of Mines, Agriculture and Resources P.E.I., N.B., Ont., Sask., B.C.:— Dept. of Provincial Secretary N.S.:—Clerk of Executive Council Que.:—Quebec Official Publisher Dept. of Financial Institutions, Companies and Co-operatives Man.:—Executive Council Alta.:—Dept. of Attorney General
	PUBLIC UTILITIES See also "Electric Power"	Nfld.:—Board of Public Utilities Commissioners P.E.I., B.C.:—Public Utilities Com- mission N.S., N.B.:—Board of Commis- sioners Public Utilities Que.:—Public Service Board Quebec Hydro-Electric Commis- sion

<u>Sources for Federal Data</u>	<u>Subject</u>	<u>Sources for Provincial Data</u>
Dept. of Energy, Mines and Resources Energy Development Sector Statistics Canada	<b>PUBLIC UTILITIES</b> <i>—concluded</i>	Ont.:—Dept. of Energy and Resources Management The Hydro-Electric Power Commission of Ontario Ontario Telephone Service Commission Ontario Water Resources Commission Ontario Municipal Board Man.:—The Public Utilities Board Sask.:—Government Finance Office Saskatchewan Telecommunications Saskatchewan Power Corporation Alta.:—Dept. of Municipal Affairs, Public Utilities Board
Dept. of Public Works Information Services Dept. of Labour Labour Standards Branch (wages, hours, vacations, general holidays) Public Relations and Information Services Ministry of Transport Marine and Air St. Lawrence Seaway Authority	<b>PUBLIC WORKS</b>	All Provinces except P.E.I.:— Dept. of Public Works P.E.I.:—Dept. of Public Works and Highways Additional:—Ont.:—The Hydro-Electric Power Commission of Ontario Ontario Water Resources Commission
Information Canada, Publishing Division (publications issued by Parliament and Government Departments and Agencies) Statistics Canada	<b>PUBLICATIONS</b>	Nfld., P.E.I., N.S., N.B., Man., Alta., B.C.:—Queen's Printer Que.:—Quebec Official Publisher Ont.:—Queen's Printer and Publisher Sask.:—Saskatchewan Government Printing Company
Dept. of Indian Affairs and Northern Development (national parks, national historic parks and sites, tourism in the North and in Indian reserves) Dept. of Industry, Trade and Commerce Office of Tourism Dept. of National Health and Welfare Fitness and Amateur Sport Directorate National Capital Commission Information Services National Film Board	<b>RECREATION</b> <i>See also "Health"</i>	Nfld.:—Dept. of Education and Youth Dept. of Mines, Agriculture and Resources P.E.I.:—Dept. of Education N.S.:—Youth Commission Dept. of Tourism N.B.:—Dept. of Youth and Welfare Dept. of Tourism Que.:—Dept. of Tourism, Game and Fish Ont.:—Dept. of Tourism and Information Man.:—Dept. of Tourism, Recreation and Cultural Affairs Sask.:—Dept. of Industry and Commerce, Tourist Development Branch Provincial Youth Agency Alta.:—Dept. of Culture, Youth and Recreation B.C.:—Dept. of Recreation and Conservation
Dept. of Veterans Affairs (veterans) Dept. of Indian Affairs and Northern Development Education Branch Dept. of Manpower and Immigration	<b>REHABILITATION</b> <i>(of persons)</i>	Nfld.:—Dept. of Health, Provincial Co-ordinator of Rehabilitation P.E.I.:—Dept. of Welfare N.S.:—Dept. of Public Welfare, Provincial Rehabilitation Co-ordinator N.B.:—Dept. of Youth and Welfare Que.:—Dept. of Social Affairs Dept. of Education, Service for the Vocational Rehabilitation of the Handicapped Dept. of Labour and Manpower, Workmen's Compensation Commission

Sources for Federal Data

Subject

Sources for Provincial Data

Dept. of National Health and Welfare  
Dept. of Solicitor General  
Canadian Penitentiary Service  
National Parole Board  
National Film Board

REHABILITATION  
—concluded

Ont.:—Dept. of Social and Family Services  
Dept. of Health  
Dept. of Correctional Services  
Man.:—Dept. of Health and Social Development  
Sask.:—Dept. of Welfare, Provincial Co-ordinator of Rehabilitation  
Alta.:—Dept. of Health and Social Development, Provincial Co-ordinator of Rehabilitation  
B.C.:—Dept. of Rehabilitation and Social Improvement

Dept. of Energy, Mines and Resources  
Energy Development Sector  
Mineral Resources Branch  
Dept. of the Environment  
Information and Consumer Branch  
Resource Development Branch  
Dept. of Indian Affairs and Northern Development (Y.T., N.W.T., Indian reserves)  
Dept. of Industry, Trade and Commerce  
Publicity Branch  
Dept. of Regional Economic Expansion  
Fisheries Research Board of Canada  
Information Canada, Publishing Division (agency for OECD publications)  
National Research Council, Atlantic Regional Laboratory, Halifax, N.S. (studies in chemistry and biology related to resources and industries of Atlantic provinces)  
Prairie Regional Laboratory, Saskatoon, Sask. (development of wider uses of crops grown on prairies)  
Northern Canada Power Commission  
National Film Board

RESOURCE  
DEVELOPMENT

Nfld.:—Dept. of Community and Social Development  
Dept. of Mines, Agriculture and Resources  
P.E.I.:—Dept. of Industry and Commerce  
N.S.:—Dept. of Development  
N.B.:—Dept. of Economic Growth  
Que.:—Depts. of Lands and Forests; Labour and Manpower; Roads; Social Affairs; Natural Resources; and Industry and Commerce  
Ont.:—Dept. of Treasury and Economics  
Dept. of Energy and Resources Management  
Dept. of Lands and Forests  
Ontario - St. Lawrence Development Commission  
Dept. of Municipal Affairs, Community Planning Branch  
Ontario Northland Transportation Commission, North Bay  
Man.:—Dept. of Mines, Resources and Environmental Management  
Dept. of Industry and Commerce  
Sask.:—Dept. of Industry and Commerce  
Dept. of Mineral Resources  
Dept. of Natural Resources  
Alta.:—Dept. of Industry  
B.C.:—Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics

National Research Council  
Laboratory Divisions (biology, biochemistry, building research, chemistry, mechanical engineering, aeronautical research, physics, radio and electrical engineering)  
Regional Laboratories at Saskatoon, Sask., and Halifax, N.S.  
Science Council of Canada  
Ministry of State for Science and Technology  
Atomic Energy of Canada Limited, Chalk River, Ont.  
Canadian Patents and Development Limited (licences available on patents derived from government research, etc.)  
Canadian Transport Commission  
Research Division  
Dept. of Agriculture  
Research Branch (basic and applied research on all aspects of agriculture)  
Health of Animals Branch (animal and poultry diseases)  
Canadian Grain Commission (cereal grains and oilseed crops)

SCIENTIFIC  
RESEARCH  
See also  
"Atomic  
Energy"

Nfld.:—Dept. of Community and Social Development



Sources for Federal Data

Economics Branch (farm income, marketing, land use, costs of production, etc.)  
 Dept. of Communications  
 Communications Research Centre (basic and applied research in communications and space technology)  
 Dept. of Energy, Mines and Resources  
 Geological Survey of Canada  
 Mines Branch  
 Earth Physics Branch  
 Canada Centre for Remote Sensing  
 Atlantic Geosciences Centre  
 Dept. of the Environment  
 Information and Consumer Branch  
 Marine Sciences Branch  
 Inland Waters Branch  
 Canadian Wildlife Service  
 Dept. of Indian Affairs and Northern Development  
 Dept. of Industry, Trade and Commerce  
 Office of Science and Technology  
 Dept. of National Defence  
 Defence Research Board  
 Dept. of National Health and Welfare  
 Dept. of Public Works  
 Testing Laboratories  
 Information Services  
 Dept. of Veterans Affairs (medical research)  
 Fisheries Research Board of Canada  
 Information Canada, Publishing Division (agency for International Atomic Energy Agency publications)  
 Medical Research Council (fellowships, associateships and grants-in-aid)  
 Ministry of Transport (aviation, radio, navigation)  
 National Library (national union catalogue)  
 National Museums of Canada  
 National Museum of Natural Sciences (zoology, botany, oceanography, mineral sciences, palaeontology)  
 National Museum of Man (ethnology, archaeology, folk culture, history, military history)  
 National Gallery of Canada (conservation research laboratory)  
 National Film Board  
 Statistics Canada

Subject

SCIENTIFIC  
 RESEARCH  
 —concluded

Sources for Provincial Data

P.E.I.:—Dept. of Industry and Commerce  
 N.S.:—Nova Scotia Research Foundation  
 N.B.:—Dept. of Finance  
 Dept. of Economic Growth  
 Que.:—Industrial Research Centre  
 Depts. of Agriculture and Colonization; Natural Resources; Social Affairs; Roads  
 Ont.:—Ontario Research Foundation  
 Dept. of Agriculture and Food  
 Dept. of Lands and Forests  
 Alcoholism and Drug Addiction Research Foundation of Ontario  
 The Hydro-Electric Power Commission of Ontario  
 Sheridan Park Research Community  
 Man.:—Manitoba Research Council  
 Sask.:—Saskatchewan Research Council  
 Alta.:—Alberta Research Council  
 B.C.:—Dept. of Industrial Development, Trade, and Commerce  
 B.C. Research Council

SENATE  
 See "Parliament"

Dept. of Consumer and Corporate Affairs  
 Standards Branch (for inquiries on electricity and gas inspection, weights and measures, precious metals, marking, commodity standards and national trade mark and true labelling matters)  
 Canadian Radio-Television Commission  
 Central Mortgage and Housing Corporation (building standards)  
 Dept. of Industry, Trade and Commerce  
 Office of Science and Technology

STANDARDS  
 AND  
 SPECIFICATIONS

See also  
 "Food and  
 Drugs"

Nfld., N.S., Man., Sask., Alta.:—  
 Dept. of Labour

Sources for Federal Data

Subject

Sources for Provincial Data

Dept. of Labour  
Labour Standards Branch (wages, hours, vacations, general holidays)  
Public Relations and Information Services  
Dept. of National Defence  
Dept. of Public Works  
Testing Laboratories  
Dept. of Supply and Services  
Technical Services Branch  
Ministry of Transport (standards in steamship inspection)  
National Research Council  
Physics Division (fundamental physical and electrical standards and Time Service of Canada)  
Division of Building Research

STANDARDS  
AND  
SPECIFICATIONS  
—concluded

Que.:—Dept. of Industry and Commerce, Standards Bureau  
Ont.:—Dept. of Labour  
Ontario Research Foundation  
Ontario Housing Corporation

Statistics Canada  
Bank of Canada  
Central Mortgage and Housing Corporation  
Dept. of Indian Affairs and Northern Development  
Dept. of Labour  
Economic and Research Branch  
Public Relations and Information Services  
Dept. of Manpower and Immigration  
Dept. of National Health and Welfare  
Research and Statistics Directorate  
Information Canada, Publishing Division (agent for United Nations publications)

STATISTICS

Nfld.:—Dept. of Provincial Affairs  
Dept. of Community and Social Development  
P.E.I.:—Island Information Services  
N.S.:—Dept. of Development  
N.B.:—Dept. of Education  
Dept. of Health  
Que.:—Dept. of Industry and Commerce, Bureau of Statistics  
Ont.:—Dept. of Treasury and Economics  
Dept. of Trade and Development  
Man.:—Dept. of Industry and Commerce, Economic, Business and Transportation Research  
Sask.:—Dept. of Industry and Commerce  
Provincial Treasury Dept.  
Alta.:—Dept. of Industry, Alberta Bureau of Statistics  
Dept. of Public Health, Vital Statistics  
B.C.:—Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics

Dept. of National Revenue, Taxation (income tax information)  
Dept. of National Revenue, Customs and Excise (customs duty, excise duty, excise tax and sales tax)  
Dept. of Finance (taxation policy, tariff policy, Budget papers and statistics)

TAXATION

Nfld., P.E.I., N.S., Que., Man.:—Dept. of Finance  
N.B.:—Dept. of Provincial Secretary  
Dept. of Finance  
Ont.:—Dept. of Revenue  
Sask.:—Provincial Treasury Dept.  
Alta.:—Provincial Treasurer's Dept.  
Dept. of Municipal Affairs  
B.C.:—Dept. of Finance, Surveyor of Taxes

Dept. of Energy, Mines and Resources  
Surveys and Mapping Branch  
National Research Council  
Physics Division (photogrammetric research)

TOPOGRAPHY

Nfld.:—Dept. of Mines, Agriculture and Resources  
P.E.I.:—Land Use Planning  
N.S.:—Dept. of Mines  
Nova Scotia Research Foundation  
N.B., Sask.:—Dept. of Natural Resources  
Que.:—Dept. of Lands and Forests  
Dept. of Industry and Commerce, Drafting Division  
Dept. of Natural Resources  
Ont.:—Dept. of Lands and Forests, Lands and Surveys Branch  
Man.:—Dept. of Mines, Resources and Environmental Management, Surveys Branch  
Alta.:—Dept. of Lands and Forests  
B.C.:—Dept. of Lands, Forests, and Water Resources

Sources for Federal Data	Subject	Sources for Provincial Data
<p>Dept. of Industry, Trade and Commerce Office of Tourism Dept. of Indian Affairs and Northern Development (tourism in Y.T., N.W.T. and Indian reserves; national parks, national historic parks and sites) Information Canada Expositions Division (displays) National Gallery of Canada National Film Board Statistics Canada</p>	TOURIST TRADE	<p>Nfld.:—Dept. of Community and Social Development, Tourist Development Division P.E.I.:—Dept. of the Environment and Tourism N.S., N.B.:—Dept. of Tourism Que.:—Dept. of Tourism, Game and Fish Ont.:—Dept. of Tourism and Information Man.:—Dept. of Tourism, Recreation and Cultural Affairs, Tourist Branch Sask.:—Dept. of Industry and Commerce, Tourist Development Branch Alta.:—Alberta Government Travel Bureau B.C.:—Dept. of Recreation and Conservation Dept. of Travel Industry</p>
<p>Dept. of Industry, Trade and Commerce Publicity Branch Export Development Corporation Trade Commissioner Service Dept. of Consumer and Corporate Affairs Information and Public Relations Dept. of the Environment Information and Consumer Branch Dept. of Finance Tariffs, Trade and Aid Branch Dept. of Regional Economic Expansion Information Canada, Publishing Division (agent for OECD and GATT publications) Expositions Division (displays) National Film Board Statistics Canada</p>	TRADE	<p>For incorporation of companies under provincial law, address Provincial Secretaries for P.E.I., N.S., N.B., Ont., Sask., and Alta. Nfld.:—Dept. of Justice P.E.I.:—Dept. of Industry and Commerce N.S.:—Dept. of Development N.B.:—Dept. of Economic Growth Que.:—Dept. of Industry and Commerce Dept. of Financial Institutions, Companies and Co-operatives Ont.:—Dept. of Trade and Development, Trade and Industry Division Treasury Dept., Finance and Economics Division Man.:—Dept. of Industry and Commerce, Manitoba Export Corporation Dept. of Consumer, Corporate and Internal Services Sask.:—Dept. of Industry and Commerce, Area and Trade Development Alta.:—Dept. of Industry B.C.:—Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics Dept. of Attorney General</p>
<p>Dept. of Manpower and Immigration Canada Manpower Centres (language training, educational up-grading, skill training) Company of Young Canadians Dept. of Indian Affairs and Northern Development Public Service Commission Bureau of Staff Development and Training Language Bureau</p>	TRAINING	<p>P.E.I., N.S.:—Dept. of Labour Que.:—Dept. of Labour and Manpower Dept. of Education Man.:—Dept. of Youth and Education Sask.:—Dept. of Labour Dept. of Education Indian and Metis Department Alta.:—Dept. of Labour Dept. of Advanced Education B.C.:—Dept. of Labour Dept. of Education</p>
<p>Dept. of the Secretary of State Translation Bureau National Research Council National Science Library (information re location of completed scientific translations in Canada, other countries of the Commonwealth and the United States)</p>	TRANSLATIONS	<p>N.S.:—Dept. of Education N.B.:—Dept. of Provincial Secretary Que.:—National Assembly Bureau for Translations and all departments of the Quebec administration</p>

Sources for Federal Data

Subject

Sources for Provincial Data

Ministry of Transport  
Public Affairs  
Air Canada  
Canadian National Railways  
Canadian Transport Commission  
(regulations re railways; highway crossings; rates of railways, express companies and certain inland water carriers; rates re communications, international bridges and tunnels; licences to certain inland carriers; commercial air services)  
Dept. of Indian Affairs and Northern Development  
Dept. of Industry, Trade and Commerce  
Aerospace, Marine and Rail Branch  
Publicity Branch  
Mechanical Transport Branch  
Dept. of Labour  
Conciliation and Arbitration Branch  
Economics and Research Branch  
Public Relations and Information Services  
Dept. of Public Works  
Information Services (Trans-Canada Highway and Northwest Highway System)  
Information Canada, Publishing Division (agent for ICAO publications)  
National Harbours Board  
National Museums of Canada  
National Research Council  
Division of Mechanical Engineering  
National Aeronautical Establishment  
Northern Transportation Company Limited (Crown)  
St. Lawrence Seaway Authority  
National Film Board  
Statistics Canada

TRANSPORTATION

Nfld.:—Dept. of Supply and Services  
P.E.I.:—Dept. of Industry and Commerce  
N.S.:—Dept. of Highways  
Board of Commissioners of Public Utilities  
N.B.:—Dept. of Highways  
Dept. of Provincial Secretary  
Que.:—Dept. of Transport  
Dept. of Roads  
Ont.:—Dept. of Transportation and Communications  
Ontario Northland Transportation Commission, North Bay  
Man.:—Dept. of Highways  
Dept. of Industry and Commerce, Transportation Research Branch  
Sask.:—Dept. of Highways and Transportation, Highway Traffic Board  
Alta.:—Dept. of Highways and Transport  
Highway Traffic Board  
Dept. of Industry, Transport Research and Development Division  
B.C.:—Dept. of Commercial Transport  
Dept. of Highways

Dept. of Indian Affairs and Northern Development  
Statistics Canada

TRAPPING  
See also  
"Fur Farming"

Nfld.:—Dept. of Mines, Agriculture and Resources  
P.E.I.:—Dept. of the Environment and Tourism  
N.S., Ont., Alta.:—Dept. of Lands and Forests  
N.B.:—Dept. of Natural Resources  
Que.:—Dept. of Tourism, Game and Fish  
Man.:—Dept. of Mines, Resources and Environmental Management, Wildlife Branch  
Sask.:—Dept. of Natural Resources, Fur Marketing Service  
B.C.:—Dept. of Recreation and Conservation

Dept. of Manpower and Immigration  
Canada Manpower Centres  
Dept. of Labour  
Economics and Research Branch  
Dept. of National Revenue, Taxation (collection of Unemployment Insurance contributions)  
Information Canada, Publishing Division (agent for ILO publications)  
Unemployment Insurance Commission  
Statistics Canada

UNEMPLOYMENT

Nfld., P.E.I., N.S., Sask., Alta.:—Dept. of Labour  
N.B.:—Office of the Economic Adviser  
Que.:—Dept. of Labour and Manpower  
Ont.:—Dept. of Treasury and Economics  
Man.:—Dept. of Labour, Research Branch  
B.C.:—Dept. of Industrial Development, Trade, and Commerce, Bureau of Economics and Statistics  
Dept. of Labour



Sources for Federal Data	Subject	Sources for Provincial Data
Ministry of State for Urban Affairs Central Mortgage and Housing Corporation Company of Young Canadians Dept. of Indian Affairs and Northern Development (Y.T. and N.W.T., Indian reserves, townsites in national parks) National Capital Commission	URBAN RENEWAL	Nfld.:—Dept. of Municipal Affairs and Housing P.E.I.:—Dept. of Community Services N.S., Alta., B.C.:—Dept. of Municipal Affairs Que.:—Dept. of Municipal Affairs, Housing Corporation of Quebec Ont.:—Ontario Housing Corporation Dept. of Municipal Affairs Man.:—The Manitoba Housing and Renewal Corporation Sask.:—Dept. of Municipal Affairs, Housing and Urban Renewal Branch
Dept. of Veterans Affairs (general information, rehabilitation, welfare, allowances, training, treatment, land settlement, education of children of war dead, insurance, records of service, war graves, medals and remembrance ceremonies) Canadian Pension Commission (the Pension Act and Civilian War Pensions and Allowances Act, Parts I to X) Dept. of Manpower and Immigration (civilian employment assistance) Dept. of National Health and Welfare Prosthetic Services War Veterans Allowance Board (the War Veterans Allowance Act and Civilian War Pensions and Allowances Act, Part XI)	VETERANS AFFAIRS	P.E.I.:—Dept. of Welfare N.S.:—Dept. of Public Welfare N.B.:—Dept. of Youth and Welfare Que.:—Dept. of Social Affairs Ont.:—Dept. of Social and Family Services, Soldiers Aid Commission Sask.:—Dept. of Welfare, Provincial Co-ordinator of Rehabilitation B.C.:—Dept. of Provincial Secretary
Statistics Canada Dept. of Indian Affairs and Northern Development Dept. of Labour Economics and Research Branch (labour statistics) Public Archives (early census records)	VITAL STATISTICS	Nfld., N.B.:—Dept. of Health P.E.I.:—Dept. of Health, Director of Vital Statistics N.S.:—Dept. of Public Health, Registration Services Que.:—Dept. of Social Affairs Bureau of Statistics Ont.:—Dept. of Provincial Secretary and Citizenship, Office of the Registrar-General Man.:—Dept. of Health and Social Development, Vital Statistics Division Sask.:—Dept. of Public Health, Vital Statistics Division Alta.:—Dept. of Health and Social Development, Director of Vital Statistics B.C.:—Dept. of Health Services and Hospital Insurance, Vital Statistics Division
Dept. of the Environment Information and Consumer Branch Water Management Service Dept. of Agriculture	WATER RESOURCES	Nfld.:—Dept. of Mines, Agriculture and Resources P.E.I.:—Prince Edward Island Water Authority N.S.:—Nova Scotia Water Resources Commission N.B.:—Dept. of Natural Resources Dept. of Municipal Affairs Dept. of Fisheries and Environment Que.:—Dept. of Natural Resources Ont.:—Ontario Water Resources Commission Dept. of Lands and Forests

<u>Sources for Federal Data</u>	<u>Subject</u>	<u>Sources for Provincial Data</u>
Dept. of Public Works Information Services National Film Board	<div>WATER RESOURCES —concluded</div>	Man.:—Dept. of Mines, Resources and Environmental Management, Water Resources Division Sask.:—Saskatchewan Water Resources Commission Dept. of Agriculture Saskatchewan Research Council Alta.:—Dept. of the Environment, Water Resources Division B.C.:—Dept. of Lands, Forests and Water Resources
Dept. of National Health and Welfare Company of Young Canadians Dept. of Indian Affairs and Northern Development Dept. of Manpower and Immigration (vocational re-establishment of disabled persons) National Advisory Committee on the Rehabilitation of Disabled Persons Unemployment Insurance Commission National Film Board Statistics Canada	<div>WELFARE For Welfare of Veterans see "Veterans Affairs"</div>	Nfld.:—Dept. of Social Services and Rehabilitation P.E.I., Sask., Y.T.:—Dept. of Welfare N.S.:—Dept. of Public Welfare N.B.:—Dept. of Youth and Welfare Que.:—Dept. of Social Affairs Ont.:—Dept. of Social and Family Services Man., Alta.:—Dept. of Health and Social Development B.C.:—Dept. of Rehabilitation and Social Improvement N.W.T.:—Dept. of Social Development
Dept. of the Environment Canadian Wildlife Service Information and Consumer Branch Commissioner of Yukon Territory, Whitehorse Dept. of Indian Affairs and Northern Development (wildlife in the North and in national parks) National Capital Commission National Museums of Canada National Film Board	<div>WILDLIFE</div>	Nfld.:—Dept. of Mines, Agriculture and Resources P.E.I.:—Dept. of the Environment and Tourism, Fish and Wildlife Division N.S., Ont., Alta.:—Dept. of Lands and Forests N.B.:—Dept. of Natural Resources Que.:—Dept. of Tourism, Game and Fish Man.:—Dept. of Mines, Resources and Environmental Management, Research and Development Branch Sask.:—Dept. of Natural Resources, Wildlife Branch B.C.:—Dept. of Recreation and Conservation

## PART II.—SPECIAL MATERIAL PUBLISHED IN FORMER EDITIONS OF THE CANADA YEAR BOOK

It is not possible to include in any single edition of the Year Book all articles and descriptive text of previous editions. Therefore the following list has been compiled as an index to such miscellaneous material and special articles as are not repeated in the present edition. This list links the Year Book with its predecessors in respect of matters that have not been subject to wide change. Those Sections of Chapters, such as "Population", which are automatically revived when later census material is made available and to which adequate references are made in the text, are not listed unless they are in the nature of special contributions. The latest published article on each subject is shown, except when an earlier article includes material not repeated in the later one. When an article covers more than one subject it is listed under each appropriate heading.

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### PART III.—REGISTER OF OFFICIAL APPOINTMENTS\*

The following list includes official appointments for the period Dec. 31, 1970 to May 1, 1972,† continuing the list published in the 1970-71 Year Book at pp. 1343-1356. Appointments to the Governor General's staff, judicial appointments, appointments to advisory councils and appointments of limited or local importance are not included.

**Queen's Privy Council for Canada.—1971.** *Aug. 12*, Alastair William Gillespie and Martin Patrick O'Connell: to be members. **1972.** *Jan. 28*, Patrick Morgan Mahoney: to be a member.

**Lieutenant-Governor.—1971.** *Oct. 7*, Hon. Hédard J. Robichaud: to be Lieutenant-Governor of the Province of New Brunswick.

**Cabinet Ministers.—1971.** *June 11*, Hon. Joseph Julien Jean-Pierre Côté: to be Postmaster General. Hon. Jack Davis: to be Minister of the Environment. *June 30*, Hon. Robert Knight Andras: to be Minister of State for Urban Affairs. *Aug. 12*, Hon. Robert Douglas George Stanbury: to be Minister of Communications. Hon. Alastair William Gillespie: to be Minister of State for Science and Technology. Hon. Martin Patrick O'Connell: to be Minister of State. **1972.** *Jan. 28*, Hon. Arthur Laing: to be Minister of Veterans Affairs. Hon. Edgar John Benson: to be Minister of National Defence. Hon.

\* Extracts from the *Canada Gazette*, with some additions. All academic and honorary degrees and military honours have been omitted.

† Appointments made immediately preceding this date but not yet gazetted are not included.

John Napier Turner: to be Minister of Finance. Hon. Bryce Stuart Mackasey: to be Minister of Manpower and Immigration. Hon. Donald Stovel Macdonald: to be Minister of Energy, Mines and Resources. Hon. Jean-Eudes Dubé: to be Minister of Public Works. Hon. Stanley Ronald Basford: to be Minister of State for Urban Affairs. Hon. Robert Knight Andras: to be Minister of Consumer and Corporate Affairs. Hon. Otto Emil Lang: to be Minister of Justice and Attorney General of Canada. Hon. Martin Patrick O'Connell: to be Minister of Labour. Patrick Morgan Mahoney: to be a Minister of State.

**Senators.—1971.** *Nov. 10*, Renaude Lapointe, Montreal, Que. *Dec. 9*, Guy Williams, Richmond, B.C.; Michel Fournier, Pointe Verte, N.B.; and Frederick W. Rowe, St. John's, Nfld. **1972.** *Apr. 27*, Margaret F. Norrie, Truro, N.S. *Apr. 28*, Hon. George McIlraith, Ottawa, Ont.; Henry D. Hicks, Halifax, N.S.; and Alasdair Graham, Sydney, N.S.

**Deputy Ministers.—1971.** *Mar. 4*, Robert F. Shaw: to be Deputy Minister of Fisheries and Forestry from Mar. 1, 1971. Robert F. Shaw: to be Deputy Minister of the Environment from June 11, 1971. *Aug. 11*, Bernard Wilson: to be Deputy Minister of Labour from Sept. 1, 1971. James Frederick Grandy: to be Deputy Minister of Industry, Trade and Commerce from Oct. 1, 1971. James Douglas Love: to be Deputy Minister of Regional Economic Expansion from Sept. 1, 1971. *Aug. 12*, Sylvain Cloutier: to be Deputy Minister of National Defence from Sept. 1, 1971. E. B. Armstrong: to be Deputy Minister of National Revenue for Taxation from Sept. 1, 1971. **1972.** *Feb. 3*, Gordon Francis Osbaldeston: to be Deputy Minister of Consumer and Corporate Affairs from Mar. 1, 1972. *Mar. 30*, Sylvia Ostry: to be Chief Statistician of Canada from June 1, 1972. *Mar. 23*, Jacques M. Desrochers: to be Deputy Minister of Manpower and Immigration from Apr. 7, 1972.

**Diplomatic Appointments.—1971.** The following diplomatic appointments were announced during 1971. A. D. Ross: to be Canadian Ambassador to Chile. Ralph Edgar Collins: to be Canadian Ambassador to the People's Republic of China. John Alpine Dougan, High Commissioner for Canada in New Zealand: to be concurrently High Commissioner for Canada in Tonga and Western Samoa. J. H. Warren: to be Canadian High Commissioner in London, England. Donald Macalister Cornett: to be Canadian Ambassador to Denmark. Christian Hardy: to be Canadian Ambassador to Algeria. Gerald Francis George Hughes: to be Canadian Ambassador to Turkey. John Alexander McCordick: to be Canadian Ambassador to Poland. Noble Power: to be High Commissioner for Canada in Ghana and to be Canadian Ambassador to Dahomey and to Togo. David Stansfield: to be Canadian Ambassador to the United Arab Republic and concurrently to the Sudan. Barry Connell Steers: to be Canadian Ambassador to Brazil. Max Hirsch Wershof: to be Canadian Ambassador to Czechoslovakia and concurrently to Hungary. Jack Hamilton Warren: to be High Commissioner for Canada in the United Kingdom. Georges Charpentier, Canadian Ambassador to the Ivory Coast: to be concurrently Canadian Ambassador to Liberia. R. D. Jackson: to be Canadian Commissioner on the International Commissions for Supervision and Control in Viet-Nam and Laos. **1972.** The following appointments were announced during the first four months of 1972. *Jan. 21*, Ralph Edward Reynolds: to be Canadian Ambassador to Ethiopia and concurrently to Madagascar and to the Somali Republic. *Feb. 21*, Jean-Marie Déry: to be Canadian Ambassador to the Republic of Zaire and concurrently to the People's Republic of Congo and to Rwanda. *Feb. 28*, Jean-Marie Déry: to be also Canadian Ambassador to Burundi.

**Air Canada.—1971.** *June 10*, George Meikle, Summerside, P.E.I.: to be a Director until Oct. 1, 1973.

**Atlantic Development Council.—1971.** *Mar. 25*, John R. Lynk, New Glasgow, N.S.; Calvert C. Pratt, St. John's Nfld.; and Alyre H. Cormier, Moncton, N.B.: to be members for three years. **1972.** *Jan. 13*, John B. Foote, Grand Bank, Nfld.; Paul LePage, Bathurst, N.B.; and J. J. Kinley, Lunenburg, N.S.: to be members for two years, from Jan. 1, 1972.

**Atomic Energy Control Board.—1971.** *Apr. 1*, W. M. Gilchrist, President, Eldorado Nuclear Limited; and J. L. Gray, President, Atomic Energy of Canada Limited: to be again members for three years from Apr. 1, 1971.

**Bank of Canada.—1971.** *Dec. 23*, The appointment of G. K. Bouey as Deputy Governor has been approved by the Directors for a term of seven years from Jan. 1, 1972. **1972.** *Mar. 2*, Sol Kanee, Winnipeg, Man.; Spencer G. Lake, Burgeo, Nfld.; James Lewtas, Toronto, Ont.; Maurice Riel, Montreal, Que.; and Jacques Taschereau, Quebec, Que.: to be again Directors for three years, effective Mar. 1, 1972.

**Canada Council.—1971.** *May 27*, Louis Durocher, Edmonton, Alta.: to be again a member for three years from May 25, 1971. Howard Leyton-Brown, Regina, Sask.; Mrs. Arthur Johnston, Winnipeg, Man.; André Paré, Quebec, Que.; Marquitta Riel, Montreal, Que.; Monique Bosco, Montreal, Que.; and Eric McLean, Montreal, Que.: to be members for three years. *Dec. 9*, Bernice Holota, Hamilton, Ont.; John Grace, Ottawa, Ont.; and David Slater, Toronto, Ont.: to be members for three years.

**Canada Development Corporation.—1971.** *Nov. 18*, Laurent Beaudoin, Valcourt, Que.; Rodolphe B. Casgrain, Montreal, Que.; Pierre Côté, Quebec, Que.; M. A. Crowe, Ottawa, Ont.; Louis R. Desmarais, Montreal, Que.; J. P. Gallagher, Calgary, Alta.; H. A. Hampson, Montreal, Que.; Gordon F. Hughes, Windsor, N.S.; Sydney Maislin, LaSalle, Que.; Hugh A. Martin, Vancouver, B.C.; H. Harrison McCain, Florenceville, N.B.; W. C. Y. McGregor, Montreal, Que.; J. H. Moore, Toronto, Ont.; Frederick W. Sellers, Winnipeg, Man.; F. H. Sherman, Hamilton, Ont.; Livia Thür, Trois-Rivières, Que.; J. N. Turvey, Regina, Sask.; and A. F. Waters, Toronto, Ont.: to be provisional Directors.

**Canada Grains Council.—1971.** *Nov. 18*, Ronald Grant McCullough, Red Deer, Alta.: to be Alberta Assistant Commissioner.

**Canada Labour Relations Board.—1971.** *Oct. 14*, William T. Wilson, Montreal, Que.: to be a member as a representative of employers.

**Canada-United States Permanent Joint Board on Defence.—1971.** *Oct. 22*, John Black Aird: to be Chairman of the Canadian Section.

**Canadian Broadcasting Corporation.—1972.** *Feb. 24*, Sidney Newman, Montreal, Que.: to be a Director for five years.

**Canadian Commercial Corporation.—1972.** *Mar. 2*, Eric Arthur Booth and Arthur Reginald Bailey: to be Directors.

**Canadian Consumer Council.—1971.** *Mar. 18*, Harold Buchwald: to be Chairman for up to two years, *vice* D. S. R. Leighton. Bernice Walsh, St. John's, Nfld.; Mrs. A. McDonough, Halifax, N.S.; William Dodge, Ottawa, Ont.; Niquette Delage, Montreal, Que.; Yves Ménard, Montreal, Que.; André Laurin, Quebec, Que.; William A. Neilson, Toronto, Ont.; David Kirk, Ottawa, Ont.; George S. May, Vancouver, B.C.; D. S. R. Leighton, Banff, Alta.; and Mrs. A. F. W. Plumptre, West Hill, Ont.: to be members until Dec. 31, 1972. *Sept. 23*, Mrs. W. A. Brechin, Etobicoke, Ont.: to be a member until July 1, 1972.

**Canadian Film Development Corporation.—1971.** *May 6*, David P. Silcox, Toronto, Ont.: to be a member until Feb. 28, 1973. Doris Shadbolt, Vancouver, B.C.; Jean-Guy Fredette, Montreal, Que.; and Marcelle Racine, Montreal, Que.: to be members for five years.

**Canadian Grain Commission.—1971.** *Mar. 4*, Harold Delmer Pound and Charles Lemington Shuttleworth, Winnipeg, Man.; and Forrest Hetland, Naicam, Sask.: to be Commissioners, Mr. Pound to be Chief Commissioner.



**Canadian National Railways.—1972.** *Jan. 18*, Ewart Arthur Pratt, St. John's, Nfld.: to be a Director for three years. **1972.** *Feb. 3*, André Monast, Quebec, Que.: to be a Director for three years, *vice* Renault St-Laurent. *Mar. 9*, Austin Hayes, Halifax, N.S.; Herbert C. Pinder, Saskatoon, Sask.; and Yves Pratte, Quebec, Que.: to be again Directors for three years.

**Canadian Overseas Telecommunication Corporation.—1971.** *Mar. 25*, de Montigny Marchand: to be a Director. *June 1*, Jean-Claude Delorme: to be President and General Manager for seven years from June 1, 1971.

**Canadian Pension Commission.—1971.** *Apr. 8*, William Andrew Gilmour, Victoria, B.C.: to be an *ad hoc* member for one year. John Lyndon Thompson, Saint John, N.B.: to be a member for ten years from Apr. 1, 1971. Howard J. Clarke, Chippawa, Ont.: to be a member for ten years. Thomas Duncan Anderson: to be a member from Apr. 6, 1971 to Mar. 21, 1979. Allan Omar Solomon: to be Commissioner and Chairman for ten years from Apr. 6, 1971. *June 10*, C. K. H. Kendall, Ottawa, Ont.: to be an *ad hoc* member for one year. *Oct. 7*, Alexandre Bédard, Quebec, Que.: to be an *ad hoc* member for one year from Dec. 1, 1971. *Dec. 23*, Joseph Gontran Bisson: to be again an *ad hoc* member for one year from Jan. 15, 1972. Frederick Leo Reardon, Ottawa, Ont.: to be an *ad hoc* member for one year from Jan. 15, 1972.

**Canadian Radio-Television Commission.—1971.** *Jan. 14*, Gordon Hughes, Windsor, N.S.; and George McKeen, Vancouver, B.C.: to be again part-time members for three years from Apr. 1, 1971. *Apr. 1*, Jacques Hébert, Montreal, Que.: and Jacques de la Chevrotière, Quebec, Que.: to be part-time members for five years. **1972.** *Mar. 2*, Gertrude Laing, Calgary, Alta.; and Gordon Thomas, St. Anthony, Nfld.: to be again part-time members for five years, effective Apr. 1, 1972.

**Canadian Saltfish Corporation.—1970.** *Dec. 23*, Clifford Russell: to be a Director for three years. **1971.** *July 29*, Marcel Pelletier: to be a Director for three years from June 25, 1971.

**Canadian Transport Commission.—1971.** *June 16*, Guy Roberge: to be a member and Vice-President for ten years from Aug. 1, 1971. John Barrie Glen Thomson, Eston, Sask.: to be a member for ten years from June 28, 1971. *Sept. 17*, Louis R. Talbot, Ottawa, Ont.: to be a member. **1972.** *Jan. 28*, Ann Harley Sedgewick Carver, Ottawa, Ont.: to be a member until Aug. 19, 1979.

**Canadian Wheat Board.—1971.** *Mar. 4*, Garson Nathaniel Vogel, Assistant Chief Commissioner: to be Chief Commissioner; Douglas H. Treleaven, Commissioner: to be Assistant Chief Commissioner; and Robert M. Esdale, Ottawa, Ont.: to be a Commissioner from Apr. 1, 1971.

**Cape Breton Development Corporation.—1971.** *Apr. 8*, Harold A. Renouf, Halifax, N.S.: to be a Director for five years from Apr. 13, 1971. *June 29*, Tom Kent: to be President for six years from Sept. 1, 1971. **1972.** *Jan. 18*, D. W. R. Haysom, Sydney, N.S.: to be a Director for five years.

**Central Mortgage and Housing Corporation.—1971.** *Apr. 29*, H. W. Hignett: to be again President from July 1, 1971. Dr. Peter Oberlander, Ottawa, Ont.: to be a Director, *vice* O. G. Stoner. *July 29*, Alain Nantel: to be Vice-President for seven years from Aug. 1, 1971. **1972.** *Jan. 18*, Frank A. G. Carter, Ottawa, Ont.: to be a Director.

**Company of Young Canadians.—1971.** *Mar. 4*, Buddy Daye, Halifax, N.S.; Gordon Cressy, Toronto, Ont.; and Jean-Guy Noël, Ottawa, Ont.: to be members of the Council for two years. *Apr. 8*, Shawn Sullivan, Vancouver, B.C.; and Max Mendelsohn, Montreal, Que.: to be members of the Council for one year. Mrs. Yves Mantel, Sainte-

Thérèse, Que.: to be a member of the Council for two years. *Dec. 23*, Richard I. Good, Winnipeg, Man.: to be a member of the Council for two years.

**Crown Assets Disposal Corporation.—1971.** *Aug. 25*, Henry L. Meuser and Gordon W. Hunter: to be again Directors for three years. *Sept. 9*, Ian R. MacLennan: to be a Director for three years.

**Defence Research Board.—1971.** *May 6*, Maurice L'Abbe, Université de Montréal, Montreal, Que.: to be again a member for three years from July 19, 1971. *July 29*, Larkin Kerwin, Quebec, Que.; Maurice Leclair, Ottawa, Ont.; and John D. Wood, Calgary, Alta.: to be members for three years. *Sept. 16*, William Carleton Gibson, Vancouver, B.C.: to be a member for three years.

**Dominion Council of Health.—1971.** *Oct. 7*, N. A. Mancini, Hamilton, Ont.: to be a member for three years.

**Eastern Rockies Forest Conservation Board.—1971.** *Oct. 14*, Herbert W. Beall, Ottawa, Ont.: to be a member.

**Economic Council of Canada.—1971.** *Feb. 18*, John Kostuik, Toronto, Ont.; and Albert Allain, Montreal, Que.: to be members for three years. Charles Perrault, Saint-Hyacinthe, Que.; and David L. Kirk, Ottawa, Ont.: to be again members for three years. *Feb. 25*, Marcel Bélanger, Quebec, Que.: to be a member for three years. Helen K. Mussallem, Ottawa, Ont.: to be a member for three years. *Mar. 4*, William Mahoney, National Director for Canada, United Steelworkers of America, Toronto, Ont.: to be a member for three years. *May 20*, Alfred C. Huxtable, Halifax, N.S.: to be a member for three years. *Aug. 13*, Donald MacDonald: to be again a member for three years, from Aug. 15, 1971. *Sept. 16*, André Raynauld, Montreal, Que.: to be Chairman for seven years from Jan. 1, 1972. **1972.** *Mar. 16*, Paul Babey, Edmonton, Alta.; W. Ladyman, Toronto, Ont.; and Stanley A. Little, Ottawa, Ont.: to be again members for three years. R. Fraser Elliott, Montreal, Que.; and Ian Andrew Barclay, Vancouver, B.C.: to be members for three years. Gilles Lamontagne, Quebec, Que.: to be a member for three years.

**Employment Support Board.—1971.** *Oct. 19*, J. F. Grandy, S. S. Reisman, J. L. E. Couillard and J. D. Love: to be members. *Oct. 21*, R. Lavoie, Montreal, Que.: to be a member and Chairman; and C. S. Richardson, Calgary, Alta.; and C. Kidd, Toronto, Ont.: to be members.

**Export Development Corporation.—1971.** *Jan. 21*, F. J. Chambers: to be an alternate Director for Paul Gérin-Lajoie, a Director appointed from among persons employed in the Public Service of Canada. *Feb. 4*, E. A. Ritchie: to be a Director. Michel Dupuy: to be an alternate Director for E. A. Ritchie. *Sept. 30*, J. F. Grandy: to be Chairman and a Director from Oct. 1, 1971. **1972.** *Mar. 9*, D. D. Tansley: to be an alternate Director for Paul Gérin-Lajoie.

**Farm Credit Corporation.—1971.** *July 29*, William Esmond Jarvis, Ottawa, Ont.: to be again a member for three years from May 29, 1971. Paul D. Normandeau, Ottawa, Ont.: to be a member for three years.

**Freshwater Fish Marketing Corporation.—1971.** *Mar. 11*, Denis Harvey: to be again Chairman for two years from Mar. 7, 1971. Donald Morton Stewart, Hay River, N.W.T.: to be again a Director for two years from May 16, 1971. *Aug. 18*, Martin Joseph Paetz, Edmonton, Alta.: to be a Director for two years. Russ Elmer Partridge, Prince Albert, Sask.: to be again a Director for one year from June 21, 1971. *Dec. 9*, George Lorne Grant, Ottawa, Ont.: to be a Director for two years.

**Great Lakes Fishery Commission.—1971.** *Nov. 4*, Charles James Kerswill, Ottawa, Ont.: to be a member, *vice* A. L. Pritchard. *Nov. 4*, Charles Henry Douglas Clarke,

Toronto, Ont.: to be again a member for two years from Oct. 10, 1971; and Frederick Ernest Joseph Fry, Toronto, Ont.: to be a member for two years from Oct. 31, 1971.

**Historic Sites and Monuments Board.—1971.** *June 3*, Lewis H. Thomas, Edmonton, Alta.: to be again a member for five years from May 29, 1971. George MacBeath, Fredericton, N.B.: to be again a member for three years from May 29, 1971. **1972.** *Feb. 3*, Peter B. Waite, Halifax, N.S.: to be again a member for five years. J. Maurice Careless, Toronto, Ont.: to be a member for three years.

**International Joint Commission.—1971.** *Apr. 1*, Hon. Louis Robichaud: to be a Commissioner from May 1, 1971.

**International North Pacific Fisheries Commission.—1971.** *Sept. 16*, Clifford Roland Levelton, Ottawa, Ont.: to be a member. James Cameron, Madeira Park, B.C.: to be a member for two years from Sept. 6, 1971. Carl Giske, Prince Rupert, B.C.: to be a member for one year from Sept. 6, 1971.

**International Northwest Atlantic Fisheries Commission.—1972.** *Feb. 10*, Kjell Henriksen, North Sydney, N.S.: to be again a Commissioner for the period Jan. 15, 1972 to Aug. 14, 1972.

**International Pacific Halibut Commission.—1971.** *Nov. 4*, Martin K. Eriksen: to be again a member for two years from Nov. 1, 1971.

**Law Reform Commission of Canada.—1971.** Martin Lawrence Friedland, Toronto, Ont.: to be a full-time member for five years from June 1, 1971. *June 4*, William Francis Ryan, Fredericton, N.B.: to be a full-time member for five years from July 1, 1971. Claire Barrette-Joncas, Outremont, Que.: to be a part-time member for three years from June 1, 1971. *July 8*, Hon. Antonio Lamer: to be Vice-Chairman for four years from Dec. 1, 1971. *Sept. 16*, John D. McAlpine: to be a part-time member for three years from Dec. 1, 1971.

**Medical Research Council.—1971.** *Oct. 21*, Pierre Bois, Montreal, Que.; Bernard Langer, Toronto, Ont.; Gordon Nikiforuk, Toronto, Ont.; and Kenneth Bryson Roberts, St. John's, Nfld.: to be members until July 1, 1973. Nathan Kaufman, Kingston, Ont.; Dorothy Kergin, Hamilton, Ont.; Keith Leonard MacCannell, Calgary, Alta.; and Hugh McLennan, Vancouver, B.C.: to be members until July 1, 1974. Yves Morin, Quebec, Que.: to be Vice-President. *Oct. 28*, Jacques Genest, Montreal, Que.: to be a member until July 1, 1973.

**National Arts Centre Corporation.—1970.** *Dec. 23*, Leonard A. Kitz, Halifax, N.S.; and William Teron, Ottawa, Ont.: to be again members of the Board of Trustees from Dec. 1, 1970. **1972.** *Mar. 2*, Annette Rothstein, Vancouver, B.C.; and Aline Fortin, Montreal, Que.: to be members of the Board of Trustees for three years.

**National Battlefields Commission.—1971.** *Jan. 21*, Pierre Côté, Quebec, Que.: to be a Commissioner, *vice* Napoléon Côté. Raymond Thivierge, Quebec, Que.: to be a Commissioner.

**National Capital Commission.—1971.** *Mar. 11*, René N. Leblanc, Moncton, N.B.: to be a member for three years. *Aug. 25*, Preston Reid Cook, Thunder Bay, Ont.; Richard Morency, Sainte-Foy, Que.; Mrs. Norman Goodridge, St. John's, Nfld.; Donald Reid, Ottawa, Ont.; and Barbara Lambert, Ottawa, Ont.: to be members for three years from Aug. 15, 1971.

**National Council of Welfare.—1970.** *Dec. 23*, Genevieve Duffy, Charlottetown, P.E.I.; Thérèse Longpré, Montreal, Que.; Jeanne Racine, Quebec, Que.; Gwyneth Elizabeth

French, Montreal, Que.; Simonne Bastien Tarte, Ottawa, Ont.; Harry Penny, Hamilton, Ont.; Marion Meadmore, Winnipeg, Man.; Darlene Germscheid, Winnipeg, Man.; and James Sinclair, Regina, Sask.: to be members for two years. **1972.** *Feb. 17*, Richard Cashin, St. John's, Nfld.; Mary Jane Whipple, Saint John, N.B.; Léo Cormier, Montreal, Que.; Robert Tremblay, Montreal, Que.; Alice Lamoureux, Montreal, Que.; Teresa Scriver, Toronto, Ont.; John Barber, Toronto, Ont.; June Rowlands, Toronto, Ont.; Alexander Hyndman, Edmonton, Alta.; and Marjorie Hartling, Vancouver, B.C.: to be members for two years.

**National Defence.—1972.** *Feb. 24*, Lieutenant-General Jacques Dextraze: to be Chief of the Defence Staff, with rank of General, from Sept. 15, 1972.

**National Design Council.—1971.** *June 10*, Mrs. T. Bata, Don Mills, Ont.; Mrs. J. F. Pilon, Boucherville, Que.; M. M. Globerman, Winnipeg, Man.; J. Guillon, Montreal, Que.; G. Hardman, Vancouver, B.C.; G. McCaffrey, Ottawa, Ont.; and J. H. Warren, Ottawa, Ont.: to be members for three years. **1972.** *Feb. 17*, Robert Shaw, Ottawa, Ont.: to be a member for three years.

**National Film Board.—1971.** *July 29*, Jean-Louis Roux, Montreal, Que.; Donald Snowden, St. John's, Nfld.; and George Davidson, Ottawa, Ont.: to be members for three years.

**National Harbours Board.—1971.** *Jan. 21*, T. M. Bryson: to be a member for ten years from Jan. 11, 1971. *Nov. 16*, Delmer Edgar Taylor, Ottawa, Ont.: to be Chairman for ten years from Sept. 17, 1971.

**National Museums of Canada.—1972.** *Feb. 24*, Sally Weaver, Waterloo, Ont.; and Léon Simard, Montreal, Que.: to be members of the Board of Trustees until Apr. 1, 1975.

**National Parole Board.—1971.** *Sept. 30*, Jean-Paul Gilbert, Montreal, Que.: to be a member for ten years from Oct. 8, 1971.

**National Research Council of Canada.—1971.** *Mar. 11*, D. J. LeRoy: to be again Vice-President (Scientific) for three years from July 1, 1971. *Apr. 8*, J. S. Dupré, Toronto, Ont.; G. Savard, Montreal, Que.; and G. M. Volkoff, Vancouver, B.C.: to be again members until Apr. 1, 1974. Lionel Audley Cox, Vancouver, B.C.; V. N. Mackiw, Toronto, Ont.; and G. Wallace F. McCain, Florenceville, N.B.: to be members until Apr. 1, 1974. *Nov. 4*, Kenneth V. Cox, Saint John, N.B.: to be a member until Apr. 1, 1974.

**Pension Review Board.—1971.** *Jan. 26*, Hon. Mr. Justice Sam S. Bard, Quebec Superior Court: to be a member. *Apr. 8*, Philip Edward Reynolds, Ottawa, Ont.: to be a member until Mar. 12, 1976. William Pendleton Power, Ottawa, Ont.: to be a member for five years. Leo McIntyre, Glace Bay, N.S.: to be a member for five years. Margaret Alberta Fullerton, London, Ont.: to be a member for five years. René Norbert Jutras, Lucerne, Que.: to be Chairman for five years.

**Preparatory Commission for Metric Conversion.—1971.** *June 25*, S. M. Gossage, Montreal, Que.: to be a member and Chairman. *Dec. 30*, Maurice Archer, Montreal, Que.; Lesley H. Chater, Hamilton, Ont.; Pierre Demers, Montreal, Que.; Arnold J. Groleau, Montreal, Que.; Darcy D. Morris, Vancouver, B.C.; Réjean Parent, Ville de Brossard, Que.; Betty E. Robinson, Saskatoon, Sask.; Thomas A. Somerville, Montreal, Que.; G. G. Ernest Steele, Ottawa, Ont.; James W. E. Thomas, Brockville, Ont.; and Alexander S. Tirrell, Thornhill, Ont.: to be part-time members for three years. *Dec. 31*, Albert Cohen, Winnipeg, Man.: to be a part-time member for three years.

**Public Archives.—1970.** *Dec. 23*, Wilfred Irvin Smith, Ottawa, Ont.: to be Dominion Archivist.



**Public Service Commission.—1971.** *June 2*, Irene E. Johnson: to be a Commissioner for ten years from July 1, 1971.

**Public Service Staff Relations Board.—1971.** *Jan. 21*, W. Steward Martin, Winnipeg, Man.: to be again an adjudicator for one year on a part-time basis from Nov. 1, 1970. *Jan. 28*, D. G. Pyle: to be a member to represent the interests of the employer for seven years from Dec. 21, 1970. *Apr. 29*, Kenneth Edward Norman, Saskatoon, Sask.: to be an adjudicator for two years on a part-time basis. Pierre Verge, Quebec, Que.: to be an adjudicator for two years on a part-time basis. *May 6*, R. J. S. Moir, Kelowna, B.C.: to be an adjudicator for two years on a part-time basis.

**Royal Canadian Mint.—1971.** *Apr. 29*, Angus Sinclair Abell: to be again a Director for three years from Apr. 1, 1971. *Dec. 9*, William A. Kennett: to be a Director. **1972.** *Jan. 27*, Stanley Marsland: to be again a Director for three years.

**Science Council of Canada.—1971.** *Aug. 25*, Pierre Dansereau, Montreal, Que.; Joseph Kates, Toronto, Ont.; and W. G. Schneider, Ottawa, Ont.: to be again members for three years from Sept. 13, 1971. Peter Anthony Larkin, Vancouver, B.C.; and A. A. Bruneau, St. John's, Nfld.: to be members for three years from Sept. 13, 1971. Robert Shaw, Ottawa, Ont.: to be an associate member from Sept. 13, 1971. *Sept. 1*, Fernand Roberge, Montreal, Que.: to be a member for three years from Sept. 13, 1971, *vice* P. A. Giguère. *Sept. 9*, Livia Thür, Montreal, Que.: to be a member for three years from Sept. 13, 1971, *vice* Roger Larose. René Fortier, Montreal, Que.: to be a member for three years from Sept. 13, 1971, *vice* Leonard Hynes.

**Standards Council of Canada.—1971.** *June 10*, Ralph F. Patterson, Vancouver, B.C.; and Jack N. Turvey, Regina, Sask.: to be members for two years. Ledford George Chester Lilley, Ottawa, Ont.: to be a member and Vice-President for three years. Andrew G. Kneiwasser, Ottawa, Ont.: to be a member and a member of the Executive Committee. Philip John Farmer, Ottawa, Ont.; William Henderson Dalton, Toronto, Ont.; Bernard D'Amour, Chateauguay, Que.; Palmer Ernest Savage, Montreal, Que.; Robert A. Joss, Montreal, Que.; Jean Henri Picard, Montreal, Que.; Mary Elaine Robinson, Islington, Ont.; Arthur Ainlay, Gormley, Ont.; George Almond Nicholson, Willowdale, Ont.; Maxwell Glenn Ballantyne, Ottawa, Ont.; William Leslie Hutchison, Islington, Ont.; George Willington Lord, Edmonton, Alta.; Charles Raymond Barrett, St. John's, Nfld.; Claude Bursill, Fredericton, N.B.; Raymond Morissette, Sillery, Que.; Donald I. Gardner, Edmonton, Alta.; Stuart W. Clarkson, Toronto, Ont.; David Darlington, Charlottetown, P.E.I.; John Glidden Starr Campbell, Halifax, N.S.; Charles Riddell Webster, Regina, Sask.; Donald Dulake Elliott, Winnipeg, Man.; and Neil B. Hutcheon, Ottawa, Ont.: to be members for three years. Robert George McQuillan, Willowdale, Ont.; Gérard Fecteau, Cap Rouge, Que.; Robert Forest DeGrace, Ottawa, Ont.; J. Guy Beauchemin, Lucerne, Que.; Philip S. Young, Winnipeg, Man.; William Bruce Dodd, Montreal, Que.; Charles Graham Munro, Embro, Ont.; Bernard Robert Lachapelle, Montreal, Que.; John Henry Waghorne, Etobicoke, Ont.; Lionel I. Rubin, Montreal, Que.; Gerald J. Gaudet, Moncton, N.B.; Johanna Michalenko, Saskatoon, Sask.; and Andrew Hollett, Ottawa, Ont.: to be members for two years. David L. Killam, Delta, B.C.; Bette M. Stephenson, Willowdale, Ont.; Charles Gordon O'Brien, Ottawa, Ont.; Thomas Alfred Lindsay, Brockville, Ont.; Alexander H. MacKinnon, Halifax, N.S.; Cecil Argent Farrow, Windsor, Ont.; Auguste Marc Thorimbert, St. Norbert, Man.; William Arthur Woodcock, Oshawa, Ont.; Joseph Camille Roland Désourdy, Cowansville, Que.; Gerold Spitzer, Hampstead, Que.; Huguette Plamondon, Montreal, Que.; John Noel Kirkbride, Flin Flon, Man.; Cornelius Neufeld, Pointe Claire, Que.; and John Convey, Ottawa, Ont.: to be members for one year. James Blair Seaborn, Ottawa, Ont.; and Henry de Puyjalon, Ottawa, Ont.: to be members. *Oct. 21*, Jean-Paul Carrière, Westmount, Que.: to be a member and President for three years. *Dec. 2*, Jacques Lapalme, Sainte-Foy, Que.: to be a member for three years, *vice* Raymond Morissette.

**1972.** *Jan. 27*, Arthur Reginald Bailey, Lucerne, Que.: to be a member. *Feb. 3*, James Edward Elliott, Windsor, Ont.: to be a member until June 10, 1972, *vice* William Arthur Woodcock.

**Tariff Board.—1971.** *June 30*, Clarence G. Quinlan, Montreal, Que.: to be a member from July 1, 1971 until Aug. 16, 1974. *Sept. 9*, René Labelle, Montreal, Que.: to be a member from Sept. 14, 1971 until Nov. 29, 1977. Wallace J. Landreth, Edmonton, Alta.: to be a member and first Vice-Chairman from Sept. 14, 1971 until Oct. 2, 1978. **1972.** *Mar. 16*, Léo Gervais: to be again a member until Feb. 19, 1974. *Mar. 23*, Louis Couillard: to be Chairman from Apr. 7, 1972.

**Tax Review Board.—1971.** *Mar. 11*, Alfred John Frost, Manotick, Ont.: to be a member for one year from Mar. 11, 1971. Reginald Sydney Walter Fordham, Ottawa, Ont.: to be Chairman from Feb. 1, 1971 until Oct. 31, 1971. *Apr. 8*, Maurice Boisvert, Ottawa, Ont., a member: to be Assistant Chairman from Feb. 8, 1971. *Oct. 7*, Reginald Sydney Walter Fordham, Ottawa, Ont.: to be again Chairman from Nov. 1, 1971 until May 8, 1972. **1972.** *Mar. 2*, Alfred John Frost: to be again a member from Mar. 11, 1972.

**Textile and Clothing Board.—1971.** *Oct. 21*, Charles Arthur Annis, Ottawa, Ont.: to be a member and Chairman for four years; John Dundas Campbell, Campbellville, Ont.: to be a member for three years; and Jacques St. Laurent, Sillery, Que.: to be a member for five years.

**Unemployment Insurance Commission.—1971.** *July 29*, William E. McBride, Montreal, Que.: to be a Commissioner for five years. *Sept. 16*, Thomas Brigham Ward: to be again a Commissioner for one year.

**War Veterans Allowance Board.—1971.** *Feb. 11*, Ernest Gordon Blair Foote, Ottawa, Ont.: to be again a temporary member for one year from May 15, 1971. *Sept. 1*, Jean E. A. J. Lamy: to be an additional member, *vice* Donald Murray Thompson. *Oct. 14*, John Harold McDougal Dehler, Ottawa, Ont.: to be again a temporary member for one year from Oct. 15, 1971. *Nov. 25*, Douglas T. McFarlane, Regina, Sask.: to be a temporary member for one year.

## PART IV.—ORDER OF CANADA AWARDS

In 1967, the Centennial of Confederation, there was established a system of honours and awards for Canada. On the recommendation of the Government, Her Majesty Queen Elizabeth the Second approved the issue of Letters Patent establishing a society of honour to be known as "The Order of Canada" for the purpose of according recognition to Canadian citizens and other persons for merit. The Order consists of three awards—the Companion of the Order of Canada, the Medal of Courage and the Medal of Service. The Chancellor and Principal Companion of the Order is the Governor General and nominations for awards are made directly to the Governor General by an Advisory Council composed of the Chief Justice of Canada (Chairman), the Clerk of the Privy Council, the Under Secretary of State, the Chairman of the Canada Council, the President of the Royal Society of Canada and the President of the Association of Universities and Colleges of Canada. Companions of the Order are selected on the basis of "merit, especially service to Canada or to humanity at large" and the maximum number shall never exceed 150. The Medal of Courage is awarded for the performance of "an act of conspicuous courage in circumstances of great danger" and is not, of course, limited to a fixed maximum number. The Medal of Service is awarded for different categories of meritorious service from that for Companions and not more than 50 may be given in any one year.

The first appointments were made on July 6, 1967 by the Governor General in his capacity as Chancellor and Principal Companion of the Order of Canada; they are listed in

the 1969 Canada Year Book at p. 1269, together with subsequent appointments of Dec. 22, 1967, Apr. 30, 1968, June 28, 1968 and Dec. 20, 1968; and in the 1970-71 Canada Year Book at p. 1356 for June 28, 1969, Dec. 20, 1969, June 27, 1970 and Dec. 19, 1970. From the latter date to December 1971, the following appointments were made:—

### June 25, 1971

#### To be Companions of the Order of Canada

Claude BERTRAND, M.D.  
 Florence Bayard BIRD  
 Norris R. CRUMP  
 Marcel FARIBAULT  
 Reverend W. T. ROSS FLEMINGTON, O.B.E.  
 Walter H. GAGE

Honourable Stuart S. GARSON, P.C., Q.C.  
 Honourable Charles H. LOCKE, M.C., Q.C.  
 Robert B. McCLURE, M.D.  
 Honourable Louis J. ROBICHAUD, Q.C.  
 His Eminence Cardinal Maurice ROY, O.B.E.

#### To Receive the Medal of Service of the Order of Canada

Henry F. ANGUS  
 Bertram C. BINNING  
 Jean-Charles BONENFANT  
 Dorothy CADWELL  
 Douglas H. COPP, M.D.  
 Lyle CREELMAN  
 Lloyd A. DENNIS  
 Ralph A. EDWARDS  
 Hervé FLION  
 Chief Dan GEORGE  
 Gordon HOWE  
 John E. LIERSCH  
 Elsie Gregory MACGILL

Innis G. MACLEOD, Q.C.  
 André MARCIL  
 Alexandrina McDougall  
 Guido MOLINARI  
 Brigadier-General Alexander ROSS, C.M.G.,  
 D.S.O., V.D., Q.C.  
 François ROZET  
 Léopold SIMONEAU  
 George STEER, Q.C.  
 Reverend Father Anthony SYLLA  
 Marcel TRUDEL  
 Tommy TWEED  
 Harry V. WARREN

### Dec. 17, 1971

#### To be Companions of the Order of Canada

Thomas J. BATA  
 Robert E. BELL  
 Roy DANIELLS  
 Louis-Philippe de GRANDPRÉ, Q.C.  
 Robert A. D. FORD  
 James M. HARRISON

Margaret LAURENCE  
 Reverend Father Louis-Marie RÉGIS  
 Escott M. REID  
 Guy ROCHER  
 Lucien SAULNIER  
 Harry SOMERS

#### To Receive the Medal of Service of the Order of Canada

Lennox G. BELL, M.B.E., M.D.  
 Ralph P. BELL, O.B.E.  
 Leslie CLIFF  
 Captain the Reverend Father Raoul CLOUTIER  
 Colonel John W. DAVIES, C.D.  
 Arthur J. GOSSELIN  
 George JACOBSEN  
 Thorvaldur JOHNSON  
 Lieutenant-Colonel James A. JOHNSTON, C.D.  
 Iby KOERNER  
 Paul L'ANGLAIS, C.D.  
 David S. LLOYD  
 Isabel MACNEILL, O.B.E.

Helen G. McARTHUR  
 Reverend William W. MOORE  
 Omer PARENT  
 Jean-Louis ROUX  
 Marion V. ROYCE  
 Chief James SEWID  
 Honourable Walter R. SHAW, M.B.E.  
 Winnifred M. STEWART  
 Jean VANIER  
 Lawrence J. WALLACE  
 Arnold M. WALTER  
 Harry L. WELSH

## PART V.—FEDERAL LEGISLATION, 1970-72

Successive issues of the Canada Year Book carry a continuous record of legislation passed by the Parliament of Canada. Listed here is legislation passed during the Third Session of the Twenty-eighth Parliament, from Oct. 8, 1970 to Feb. 16, 1972. Naturally in summarizing material of this kind it is not possible to convey the full implication of a statute but only to give some indication of its content. The reader who is interested in any specific Act is referred to the *Statutes of Canada* in the given year and chapter.

**Legislation of the Third Session of the Twenty-eighth Parliament,  
Oct. 8, 1970 to Feb. 16, 1972**

Subject, Chapter and Date of Assent	Synopsis
19-20 ELIZ. II	
<b>Agriculture— 1970</b>	
7 Dec. 18	<i>The Canada Grain Act</i> provides for the constitution of the Canadian Grain Commission, for the establishment of grades of western and eastern grain, for the establishment of Grain Standards Committees, for the grading and inspection of grain, for the constitution of grain appeal tribunals, for the licensing of elevator operators and grain dealers, and for the handling and carriage of grain.
<b>1971</b>	
29 Mar. 30	<i>An Act to amend the Crop Insurance Act</i> increases the extended coverage offered under the Act by permitting insurance against loss arising when the planting or seeding of a crop is prevented by excess ground moisture, weather or other agricultural hazards.
54 June 30	<i>An Act to amend the Prairie Grain Advance Payments Act</i> gives the Governor in Council authority to prescribe the rate per bushel in respect of advance payments, to establish on a continuing basis provisions in respect of emergency advance payments for drying grain and to provide for emergency advance payments for unthreshed grain to a producer to a maximum of \$3,000. The application of the Act is extended to rye, flaxseed and rapeseed.
<b>1972</b>	
65 Jan. 12	<i>The Farm Products Marketing Agencies Act</i> provides for the establishment of the National Farm Products Marketing Council to review and advise on all matters relating to the formation and operation of agencies under this Act, with a view to maintaining and promoting an efficient and competitive agriculture industry. The Act also authorizes the establishment of farm product marketing agencies, each to promote a strong, competitive production and marketing industry for the product or products with which it is concerned.
<b>Consumer Affairs— 1970</b>	
6 Dec. 18	<i>The Canada Cooperative Associations Act</i> is an exhaustive statute providing, for the first time, for federal incorporation of co-operatives, which were formerly incorporated either under the federal Companies Act or by special Acts of Parliament. The Act permits co-operative associations to serve their members on a multi-provincial or a national basis and sets down in detail the technicalities of incorporation and operation.
<b>1971</b>	
36 Apr. 7	<i>The Weights and Measures Act</i> revises and consolidates the legislation on weights and measures in Canada, stating in Schedules I and II the basic supplementary and derived units of measurement for use in Canada and definitions and abbreviations for Canadian units of measurement in Schedule II. Regulations concerning the use of units of measurement and devices and the marking of commodities and inspection as well as penalties for offences are given in detail.
39 May 19	<i>The Textile and Clothing Board Act</i> establishes the Textile and Clothing Board, authorized to determine whether imported textile and clothing goods that are the subject of inquiry are being imported in such quantities and under such conditions as to cause or threaten serious injury to the production in Canada of such goods. Reports and recommendations are submitted to the Minister of Industry, Trade and Commerce.
41 June 10	<i>The Consumer Packaging and Labelling Act</i> contains regulations respecting the packaging, labelling, sale, importation and advertising of pre-packaged and certain other products, which are designed to afford greater protection to consumers by way of information on the products they buy.
60 Dec. 23	<i>An Act to amend the Copyright Act</i> confines copyright in records, perforated rolls or other contrivances by means of which sounds are mechanically reproduced, to the reproduction of such contrivances.



**Legislation of the Third Session of the Twenty-eighth Parliament,  
Oct. 8, 1970 to Feb. 16, 1972—continued**

Subject, Chapter and Date of Assent	Synopsis
<b>Economic Expansion— 1970</b>	
10 Dec. 18	<i>An Act to amend the Regional Development Incentives Act</i> authorizes provision of a third class of incentive and establishes its maximum as well as the maximum combined development incentive that may be authorized. It provides for a loan guarantee in certain cases and under certain conditions to a person who establishes a new facility or expands or modernizes an existing facility or who establishes a new commercial facility of a prescribed nature and makes other related adjustments.
<b>1971</b>	
49 June 30	<i>The Canada Development Corporation Act</i> provides for the establishment of the Canada Development Corporation to be administered by a Board of Directors with authority to invest in the shares or securities of corporations. It provides for Federal Government participation in the Corporation by the purchase of shares up to the amount of \$250,000,000 and gives the Minister of Finance authority to advance loans to the Corporation of up to \$100,000,000. The capital stock of certain enumerated corporations owned by the Federal Government may be sold to the Corporation, for which the Government may accept cash, shares or securities of the Corporation.
<b>Environment— 1971</b>	
28 Mar. 30	<i>The Canadian National Environment Week</i> states that the second week in October each year shall be kept and observed as Canadian National Environment Week to make people aware of pollution on land, in the air and in the sea, lakes and rivers of Canada.
47 June 23	<i>The Clean Air Act</i> provides for the establishment, operation and maintenance of a system of air pollution monitoring stations throughout Canada; for the conduct of research and the establishment of demonstration projects; for the collection and publication of data for public information relating to air pollution; and for the establishment of national and specific emission standards and guidelines; and provides for the entering into agreements with provincial governments to formulate, co-ordinate and implement policies and programs for the control and abatement of air pollution.
57 Oct. 14	<i>An Act to amend the Northwest Atlantic Fisheries Convention Act</i> requires Canadian fishing vessels within the Convention area to permit protection officers of member states of the Northwest Atlantic Fisheries Convention to board and inspect fishing gear and catch and authorizes Canadian protection officers to board foreign fishing vessels for the same purpose. The amendment makes it an offence for the owner or master of a Canadian fishing vessel to fail to permit such inspection.
59 Dec. 15	<i>The Weather Modification Information Act</i> provides for the obtaining of information respecting weather modification activities.
<b>Finance— 1970</b>	
5 Dec. 18	<i>Appropriation Act No. 4, 1970</i> grants certain sums of money for the public service for the financial year ending Mar. 31, 1971.
<b>1971</b>	
25 Mar. 30	<i>Appropriation Act No. 1, 1971</i> grants certain sums of money for the public service for the financial year ending Mar. 31, 1971.
26 Mar. 30	<i>Appropriation Act No. 2, 1971</i> grants certain sums of money for the public service for the financial year ending Mar. 31, 1972.
46 June 23	<i>Appropriation Act No. 3, 1971</i> grants certain sums of money for the public service for the financial year ending Mar. 31, 1972.
58 Dec. 15	<i>Appropriation Act No. 4, 1971</i> grants certain sums of money for the public service for the financial year ending Mar. 31, 1972.
<b>Government— 1971</b>	
18 Mar. 11	<i>An Act respecting the Electoral Boundaries Readjustment Act</i> changes the name of the electoral district of "Lakeshore" in Ontario to "Toronto-Lakeshore".

**Legislation of the Third Session of the Twenty-eighth Parliament,  
Oct. 8, 1970 to Feb. 16, 1972—continued**

Subject, Chapter and Date of Assent	Synopsis
<b>Government—concluded</b>	
19 Mar. 11	<i>An Act respecting the Electoral Boundaries Readjustment Act</i> changes the name of the electoral district of "Bonaventure" in Quebec to "Bonaventure-Iles de la Madeleine".
20 Mar. 11	<i>An Act respecting the Electoral Boundaries Readjustment Act</i> changes the name of the electoral district of "Surrey" in British Columbia to "Surrey-White Rock".
21 Mar. 11	<i>An Act respecting the Electoral Boundaries Readjustment Act</i> changes the name of the electoral district of "Beauharnois" in Quebec to "Beauharnois-Salaberry".
22 Mar. 11	<i>An Act respecting the Electoral Boundaries Readjustment Act</i> changes the name of the electoral district of "Bourassa" in Quebec to "Montreal-Bourassa".
38 May 19	<i>The Statutory Instruments Act</i> provides for the examination, publication and scrutiny of regulations and other statutory instruments. The objective of the Act is to protect the public from the improper or unusual exercise of power that has been delegated by Parliament; most proposed regulations must be submitted to the Clerk of the Privy Council who, with the Deputy Minister of Justice, will ensure that they are authorized by statute, that they do not constitute an unusual or unexpected use of the authority to which they are to be made, that they do not trespass unduly on existing rights and freedoms and that the form and draftsmanship are in accordance with established standards.
42 June 10	<i>The Government Organization Act, 1970</i> establishes a Department of the Environment; delineates certain duties of the Minister of Energy, Mines and Resources; places responsibility for astronomical observatories in the National Research Council; provides for Ministries of State; increases the number of Parliamentary Secretaries from 16 to a number equal to the number of Ministers who hold offices listed in the Salaries Act; provides for the appointment of a Postmaster General; provides for improved early retirement benefits for public service employees; and includes a number of other amendments.
44 June 10	<i>An Act to amend the Prime Minister's Residence Act</i> changes the name of the Act to "Official Residences Act". It also makes provision for residences for the Leader of the Opposition and for the Speaker of the House of Commons and for their maintenance and for the appointment of a staff to manage the Prime Minister's residence. Any benefit thus received by the incumbents of these three positions is to be regarded as a living allowance expressly fixed by this Act.
45 June 10	<i>An Act to amend the Senate and House of Commons Act, the Members of Parliament Retiring Allowances Act, and an Act to make provision for the retirement of members of the Senate</i> increases the sessional allowances for members of the Senate and House of Commons and their allowances for expenses incidental to the discharge of their duties, and gives greater authority to the Senate and the House regarding certain expenses to be allowed. Adjustments in contributions and benefits are made in retirement regulations.
<b>Health and Social Services—</b>	
<b>1970</b>	
9 Dec. 18	<i>An Act to amend the Old Age Security Act</i> fixes the amount of the old age pension at \$80 a month, effective Jan. 1, 1971; increases, effective Apr. 1, 1971, the maximum supplement that may be paid to a pensioner; permits the payment of a supplement to any pensioner without restriction as to the date of his birth; and provides for annual escalation of the maximum supplement that may be paid in any fiscal year commencing after the year beginning Apr. 1, 1971.
<b>1971</b>	
13 Feb. 11	<i>An Act to repeal the Leprosy Act</i> , which is no longer necessary in the light of present-day medical facilities.
31 Mar. 30	<i>An Act to amend the Pension Act and the Civilian War Pensions and Allowances Act</i> includes a wide range of changes providing for more flexibility in the payment of compensation to disabled veterans or to dependants in case of death. The major changes include the provision of pensions for members of the Hong Kong force and other prisoners of war of the Japanese and to dependants of deceased members, the provision of increased allowances for exceptional incapacity and provision for the payment of pensions or additional pensions for reasons not covered previously. The Act provides for the establishment of an independent Bureau of Pensions Advocates and for two new boards for the hearing of appeals—the Entitlement Board and the Pension Review Board—and for new procedures for the making and hearing of applications for awards.

**Legislation of the Third Session of the Twenty-eighth Parliament,  
Oct. 8, 1970 to Feb. 16, 1972—continued**

Subject, Chapter and Date of Assent	Synopsis
<b>Health and Social Services—concluded</b>	
32 Apr. 7	<i>An Act to amend the Civilian War Pensions and Allowances Act</i> increases the amounts payable for all ranks and ratings in respect of serious or prolonged disability or death caused by a war service injury.
34 Apr. 7	<i>An Act to amend the Pension Act</i> increases the discretionary pension to a parent maintained by a member of the forces to \$804 a year and the pension to each parent where more than one was maintained to \$384 a year. It also provides a 10-p.c. increase in the basic rate for the scale of pensions for disabilities and a like increase in the scale of pensions for death.
35 Apr. 7	<i>An Act to amend the War Veterans Allowance Act, 1962</i> increases the table of allowances under the Act by 15 p.c. and raises the ceiling of the allowances by the same percentage in dollars.
<b>Justice— 1970</b>	
1 Dec. 3	<i>The Federal Court Act</i> continues the court of law, equity and administration in and for Canada, previously existing under the name of the Exchequer Court of Canada, under the name of the Federal Court of Canada with a fundamental change in the court structure, and sets out its constitution, jurisdiction, administration, etc.
2 Dec. 3	<i>The Public Order (Temporary Measures) Act, 1970</i> provides temporary emergency powers for the preservation of order in Canada endangered by elements of the group of persons or associations known as Le Front de Libération du Québec who have resorted to murder, threat of murder, kidnapping and other acts of coercion, intimidation and violence as a means of accomplishing governmental change within Canada with respect to the Province of Quebec or its relationship to Canada. This Act expires on Apr. 30, 1971.
<b>1971</b>	
37 May 19	<i>The Bail Reform Act</i> repeals provisions of the Criminal Code relating to arrest and bail and substitutes new provisions authorizing and governing the issue of appearance notices to and the interim release from custody of persons suspected of having committed a criminal offence, and the interim release of persons who have been convicted of a criminal offence but who have appealed or applied for leave to appeal from the conviction or sentence.
55 Oct. 6	<i>An Act to amend the Judges Act and the Financial Administration Act</i> increases the salaries of judges, makes provision for additional judges and their salaries and makes other amendments respecting compensation for extra judicial services or expenses, annuities, retirement, etc. A Canadian Judicial Council is formed to promote efficiency and uniformity and generally to improve the quality of judicial service.
<b>Labour— 1970</b>	
8 Dec. 18	<i>An Act to amend the Merchant Seamen Compensation Act and to amend an Act to amend the Merchant Seamen Compensation Act</i> broadens the circumstances in which protection is afforded to merchant seamen and their dependants and increases the amounts of compensation payable under the Act for specified reasons.
<b>1971</b>	
48 June 23	<i>The Unemployment Insurance Act, 1971</i> repeals previous legislation with respect to unemployment insurance and presents in detail regulations concerning coverage and administration. It defines and, by regulation, extends insurable employment and increases rates of benefit, and provides for the continuation of the Unemployment Insurance Commission.
50 June 30	<i>An Act to amend the Canada Labour (Standards) Code</i> raises the minimum hourly wage payable to employees aged 17 and over from \$1.65 to \$1.75. Other Parts of the Act provide for the elimination of pay differentials based on sex, establish a right to maternity leave, establish a period of notice in the case of large-scale or individual terminations of employment, and prohibit dismissal solely because an employee is the subject of garnishment proceedings.
56 Oct. 14	<i>The Employment Support Act</i> is an Act to support employment in Canada by mitigating the disruptive effect on Canadian industry of the imposition of foreign import surtaxes or other actions of a like effect.

**Legislation of the Third Session of the Twenty-eighth Parliament,  
Oct. 8, 1970 to Feb. 16, 1972—continued**

Subject, Chapter and Date of Assent			Synopsis
<b>Revenue—</b>			
<b>1970</b>			
11	Dec.	18	<i>The Tax Review Board Act</i> authorizes the establishment of the Tax Review Board to replace the Tax Appeal Board. The duties of the new Board are to hear and dispose of appeals on matters arising under the Income Tax Act, the Canada Pension Plan, the Estate Tax Act and any other designated Act of the Parliament of Canada.
<b>1971</b>			
30	Mar.	30	<i>An Act to amend the Income Tax Act and to amend An Act to amend that Act</i> permits a taxpayer who acquires new prescribed property for use in a manufacturing or processing business carried on by him to claim capital cost allowances in respect of that property on the basis of 115 p.c. of its capital cost to him. It also extends for one year the temporary surtaxes imposed on individuals and corporations.
40	June	10	<i>The Canada-Finland Supplementary Income Tax Convention Act, 1971</i> modifies the Convention entered into between Canada and the Republic of Finland for the avoidance of double taxation and the prevention of fiscal evasion with respect to taxes on income; dividends paid by a company resident in Canada to a company resident in Finland are to be exempt from Finnish tax to the extent that they would have been exempt if both companies had been residents of Finland.
43	June	10	<i>An Act respecting the consolidation of the Income Tax Act in the printed Roll of the Revised Statutes of Canada, 1970</i> has the purpose of preventing such consolidation from coming into force when the Revised Statutes are proclaimed in order that the Income Tax Act (RSC 1952, c. 148) may remain undisturbed until such time as it may be revised by Parliament for the purposes of tax reform.
61	Dec.	23	<i>An Act to amend the Customs Tariff</i> makes certain adjustments to Schedules A and B of the Act.
62	Dec.	23	<i>An Act to amend the Excise Tax Act and the Old Age Security Act</i> makes three amendments to the Excise Tax Act exempting from sales tax machinery and apparatus sold to or imported by manufacturers or producers for purposes of reducing pollution, and margarine and similar spreads, and repealing the special 15-p.c. sales tax on radios, TV sets and electron tubes. The 3-p.c. sales tax imposed as an Old Age Security tax will, in future, be imposed under the Excise Tax Act.
63	Dec.	23	<i>An Act to amend the Income Tax Act and to make certain provisions and alterations in the statute law related to or consequential upon the amendments to that Act</i> is a comprehensive and complex revision of the Canadian income tax system to make it responsive to the economic and social needs of the country.
64	Dec.	23	<i>Income Tax Law Amendment Act, 1971</i> provides that the 7-p.c. corporate tax reduction and the 3-p.c. individual tax reduction be in effect until Dec. 31, 1971 and the amendment to the training-on-the-job program applies to salaries and wages earned on or after Nov. 1, 1971 with an additional deduction from income by a taxpayer for costs incurred under a manpower training program.
<b>Trade—</b>			
<b>1970</b>			
3	Dec.	18	<i>An Act to amend the Anti-dumping Act</i> allows the Anti-dumping Tribunal to inquire into cases of alleged injury from imports which, although not dumped, are said to be unfairly competitive.
<b>1971</b>			
14	Feb.	11	<i>The New Zealand Trade Agreement (Amendment) Act</i> implements an agreement amending the Trade Agreement between Canada and New Zealand.
16	Mar.	11	<i>The Canada-Jamaica Income Tax Agreement Act, 1971</i> implements an agreement for the avoidance of double taxation with respect to income tax between Canada and Jamaica.
23	Mar.	11	<i>An Act to amend the Export Development Act</i> increases the authorized capital of the Export Development Corporation to \$75,000,000 and the amount that the Corporation may borrow from \$750,000,000 to \$1,000,000,000 and provides that the liability of the Corporation under contracts of insurance outstanding shall not at any time exceed \$150,000,000.



**Legislation of the Third Session of the Twenty-eighth Parliament,  
Oct. 8, 1970 to Feb. 16, 1972—concluded**

Subject, Chapter and Date of Assent	Synopsis
<b>Trade—concluded</b> 33 Apr. 7	<i>The Investment Companies Act</i> fills a gap in the pattern of supervision and inspection of financial institutions by establishing a system of reporting and inspection applicable to a class of companies acting as investment intermediaries which are not otherwise effectively supervised, such as sales finance companies and other types that borrow funds for the purpose of making investments and loans. The Act provides for the filing of statements and information, and sets out the qualifications and duties of auditors of such companies and the limitations on transfer of shares. Authority is given for the making of short-term loans to such companies by the Canada Deposit Insurance Corporation.
53 June 30	<i>An Act to amend the Post Office Act</i> includes changes respecting stamp agents' commission, letter mail preparation arrangements with postal customers in return for a reduction of postal rates, payment for extraordinary services rendered to the Canada Post Office, regulations re free transmission of mail for Members of the Senate and the House of Commons, and free postal service to blind persons, etc.
<b>Transportation— 1970</b>	
5 Dec. 18	<i>An Act to amend An Act respecting the Buffalo and Fort Erie Public Bridge Company</i> increases the limit on the borrowing power of the company and extends the date on which its jurisdiction is to be terminated.
<b>1971</b>	
17 Mar. 11	<i>The Canadian National Railways Financing and Guarantee Act, 1970</i> authorizes the provision of moneys to meet certain capital expenditures of the Canadian National Railway System and Air Canada for the period Jan. 1, 1970 to June 30, 1971, and guarantees certain securities to be issued by the CNR and certain debentures to be issued by Air Canada.
27 Mar. 30	<i>An Act to amend the Canada Shipping Act</i> provides for the establishment, from the Consolidated Revenue Fund, of a Maritime Pollution Claims Fund and for the appointment of an Administrator of that Fund. It authorizes the making of regulations prohibiting discharge of pollutants from ships and the appointment of pollution control officers and analysts, and provides for civil liability resulting from the discharge of pollutants and the assessment of income losses by fishermen.
51 June 30	<i>The Fort-Falls Bridge Authority Act</i> establishes a Bridge Authority to construct, maintain and operate a bridge across the Rainy River between Fort Frances, Ontario, and International Falls, Minnesota.
52 June 30	<i>The Pilotage Act</i> replaces former legislation with respect to pilotage, bringing it into line with modern requirements. The objective of the Act is to provide the greatest possible degree of safety for ships moving through Canadian coastal and inland waters. It decentralizes the powers and functions of pilotage by establishing four regional authorities—Atlantic, Laurentian, Great Lakes and Pacific—with the power to make the regulations necessary to carry out their functions.
<b>Miscellaneous— 1971</b>	
12 Feb. 11	<i>An Act to amend the Emergency Gold Mining Assistance Act</i> extends the application of the Act to June 30, 1973.
15 Feb. 11	<i>The Statistics Act</i> repeals the former Statistics Act replacing it with modernized legislation respecting the collection of statistics. The statistics bureau, to be henceforth known as "Statistics Canada", is to be administered by the "Chief Statistician of Canada". The duties of the bureau remain basically the same; the amendments bring them into line with present-day requirements.
24 Mar. 11	<i>An Act to amend the Farm Improvement Loans Act, the Small Businesses Loans Act and the Fisheries Improvement Loans Act</i> authorizes the continuation of the terms of these Acts for an additional three-year loan period commencing July 1, 1971 and ending June 30, 1974. The aggregates of the principal amounts of all guaranteed loans that may be made by all lenders during this period were, respectively: \$900,000,000 for banks and \$300,000,000 for all other lenders; \$200,000,000 for banks and \$100,000,000 for all other lenders; and \$20,000,000 for banks and \$10,000,000 for all other lenders.

## PART VI.—CANADIAN CHRONOLOGY

Events in the general chronology from 1497 to 1866 are given in the 1951 Year Book, pp. 46-49; from 1867 to 1953 in the 1954 Year Book, pp. 1259-1264; and annually from that year in successive editions. The following listing covers the year 1971 and it should be mentioned that certain of the dates given therein are approximate. Acknowledgement is given to the publication *Canadian News Facts*, Toronto, for very valuable assistance in the preparation of this chronology. References regarding changes in federal and provincial legislatures or ministries are not included but may be found in Chapter II on Constitution and Government or in Appendix I.

## 1971

**January:** *Jan. 1*, Federal regulations covering standards for snowmobile design and construction came into effect; lights, braking power and registration number are specified. *Jan. 4*, Paul and Jacques Rose, Francis Simard and Bernard Lortie found criminally responsible for the death of former Quebec Labour Minister Pierre Laporte; charged Jan. 5 with kidnapping and non-capital murder. Three-month armed guard in effect in Montreal officially ended with withdrawal of troops. *Jan. 6*, The Defence Research Board at Ottawa announced plans to build a furnace at Suffield, Alta., to burn stocks of DDT; no harmful substances to be emitted. *Jan. 7*, The Department of Finance announced that the Mercantile Bank of Canada, owned by New York interests and previously permitted to grow only in relation to its transfer of ownership to Canadian interests, would begin a 10-year program to ensure at least 75-p.c. Canadian ownership by the end of 1980. *Jan. 8*, Death of James A. Gairdner, Oakville, Ont., financier and philanthropist, who established the Gairdner Foundation Awards for outstanding achievements in medicine. Michel Chartrand, Montreal labour leader, charged with seditious conspiracy and membership in the FLQ, sentenced to a year in jail for contempt following abusive verbal attacks against Mr. Justice Roger Ouimet. *Jan. 9*, The Federal Government announced provision of \$2,250,000 to agencies engaged in relief activities on both sides of the civil war in Nigeria. *Jan. 11*, David George Greyeyes appointed the first Indian regional director of the Alberta division of the Department of Indian Affairs and Northern Development. *Jan. 14*, Report of a six-year study of the pollution problem by the International Joint Commission tabled in the House of Commons and released in Washington, D.C.; recommendations included wide powers to deal with pollution in the lower Great Lakes and the International Section of the St. Lawrence River. *Jan. 14-22*, Conference of heads of government of the Commonwealth held in Singapore; a major topic of discussion was the proposal of Britain to lift an arms embargo on South Africa; Prime Minister Trudeau credited with helping prevent a breakup of the Commonwealth and with effecting a temporary compromise in the establishment of a study group of eight nations. *Jan. 18*, The Quebec Government announced official adoption of regulations under which English-language schools in the province must teach French as a second language. *Jan. 19*, The House of Commons Public Accounts Committee gave renewed permission to Auditor-General Maxwell Henderson to report non-productive payments made by government departments. *Jan. 20*, Radio Tuktoyaktuk, N.W.T., went on the air for the first time, broadcasting in Eskimo and English. *Jan. 21*, Opening of the centennial-year session of the British Columbia legislature marred by demonstrations of unemployed persons. Mrs. Betty Kennedy, Toronto broadcaster, appointed the first non-medical associate member of the complaints committee of the College of Physicians and Surgeons of Ontario. *Jan. 22*, Betsy Clifford of

Canada, world giant slalom champion, won the top honours at the International Golden Key ski meet held at Schruns, Austria. *Jan. 23*, *The Economic Atlas of Ontario*, initiated by the Ontario Department of Trade and Development and edited by Professor W. G. Dean of the University of Toronto, chosen Book of the Year at the Leipzig International Book Fair in competition with entries from 27 countries, and awarded the only Gold Medal of the Fair. Karen Magnussen of Vancouver successfully defended her title of Canadian senior women's figure skater, and Toller Cranston of Toronto won the Canadian senior men's title. *Jan. 24*, A natural gas well on King Christian Island, burning out of control since Oct. 25, 1970, successfully capped by Panarctic Oils Ltd. *Jan. 30*, The United Church of Canada reinstated Rev. Russell Horsburgh, who resigned from the ministry in May 1965 following charges of contributing to juvenile delinquency. *Jan. 30-Feb. 9*, The U.S. spacecraft *Apollo XIV* on successful flight to the moon, carrying astronauts Alan Shepard, Edgar Mitchell and Stuart Roosa.

**February:** *Feb. 1*, The Post Office Department inaugurated an "assured mail-delivery program", providing next-day delivery of letters mailed before 11 a.m. in most major Canadian cities. The Canadian Transport Commission rejected application by the CP Rail to reduce its daily trans-continental passenger service. A Quebec Press Council, possibly the first of its kind in Canada or the U.S., established by four news organizations representing more than 700 reporters. *Feb. 2*, Death in Victoria of Dr. George Brock Chisholm, former federal Deputy Minister of Health and first Director-General of the World Health Organization. *Feb. 3*, The International Joint Commission reported that air pollution in the St. Clair and Detroit River areas has reached the point where it is detrimental to the health, safety and property of residents. *Feb. 4*, Death in London, Ont., of William (Billy) Mills, last surviving participant in the 1885 Riel Rebellion, aged 104. *Feb. 4-6*, The 1971 North American Figure Skating Championships held in Peterborough, Ont.; Karen Magnussen of Vancouver won the women's title. *Feb. 8-9*, At a federal-provincial conference of Premiers held in Ottawa, agreement was reached on a feasible formula for amending the Constitution. *Feb. 9*, Report of the inquiry into the July 5, 1970, Air Canada crash near Toronto that took the lives of 109 persons tabled in the House of Commons; premature deployment of a landing-brake system found to be the cause, and blame was attributed to members of the aircraft crew, the aircraft manufacturer, Air Canada and the Ministry of Transport. *Feb. 10*, The Federal Government announced the limiting of the 1971 Atlantic seal hunt in the Gulf of St. Lawrence and off Newfoundland and Labrador to 245,000 harp seals. *Feb. 12*, Sedition charges against five men prominent in the separatist cause in Quebec—Michel Chartrand, Robert Lemieux, Jacques Larue-Langlois, Pierre Vallières and Charles Gagnon—quashed by Mr. Justice Roger Ouimet. *Feb. 12-21*, Second Canada Winter

Games held in Saskatoon; Ontario won 93 and British Columbia 64 of the 317 medals awarded. *Feb. 13*, Ontario Minister of Education Davis chosen leader of the provincial Progressive Conservative Party and Prime Minister of Ontario, succeeding retiring Prime Minister Robarts. *Feb. 15*, Death in Toronto of Rev. Ronald MacLeod, a key figure in the formation of the United Church of Canada in 1925 and the first minister in Canada to broadcast church services and sermons on radio. Britain converted to decimal system of currency. *Feb. 23*, South Africa ordered Wasp helicopters from Britain, thereby endangering the eight-nation group set up at the suggestion of Prime Minister Trudeau to investigate the controversial arms sale; Nigeria withdrew from the committee. *Feb. 24*, *Feb. 25*, First incident of hijacking a foreign aircraft to Canada; Chapin Scott Paterson, a U.S. citizen who ordered a Boeing 747 to Vancouver, turned over to U.S. authorities the same day. *Feb. 26*, The Federal Government announced a new program of bilingualism in the Canadian Armed Forces, to attain an eventual 28-p.c. Francophone representation.

**March:** *Mar. 2*, The Canadian Transport Commission disallowed the discontinuance of CN's *Super Continental* passenger service despite its continued financial losses. *Mar. 3*, External Affairs Minister Sharp announced federal plan to employ students in summer pollution cleanup. *Mar. 4*, Prime Minister Pierre Elliott Trudeau and Margaret Sinclair of Vancouver were married in North Vancouver, B.C. Winners of the Governor General's literary awards for 1970 announced by the Canada Council: David Godfrey (fiction in English); Monique Bosco (fiction in French); Jacques Brault (drama in French); Fernand Ouellette (non-fiction in French); B. P. Nicol (poetry in English); and Michael Ondaatje (non-fiction and poetry in English). Severe blizzard causes emergency conditions in Quebec; Montreal virtually isolated by 20 inches of snow. *Mar. 5*, The Federal Government announced the sealing off of Canadian ocean fishing waters adjacent the East and West Coasts; only nations holding traditional rights may continue to exercise them. *Mar. 8*, Death in Montreal of Gordon R. McGregor, wartime fighter ace and former president of Trans Canada Airlines. *Mar. 9*, The Royal Commission on Bilingualism and Biculturalism announced that it would end its mandate without presenting a final report; changing circumstances, outdated material and other developments were given as reasons for inability to reach concrete conclusions. *Mar. 10*, Breathalyzer tests in New Brunswick, suspended early in January, resumed following a ruling by the New Brunswick Supreme Court that the legislation was "workable, provided certain procedures are followed"; stricter guidelines announced in the Legislature. *Mar. 17*, *Mar. 11*, Energy, Mines and Resources Minister Greene announced that the Federal Government would consider taking control of the financially distressed Home Oil Co. Ltd. of Calgary, the last major petroleum company in Canada still owned mainly by Canadians which was planning to transfer controlling interest to a U.S. company in the absence of a Canadian buyer; Consumers' Gas Co. of Toronto agreed Apr. 22 to purchase a controlling interest in the company. *Mar. 12*, Justice Minister Choquette of Quebec announced that the Quebec Government will compensate those unjustly arrested during the October kidnaper crisis, and that files, fingerprints, etc., would be destroyed. *Mar. 13*, Paul Rose found guilty of the murder of Quebec Labour Minister Pierre Laporte on Oct. 17 1970 and sentenced to life imprisonment. *Mar. 16*, Prime Minister Trudeau announced that \$57,800,000 would be spent to provide jobs and activities for 1,800,000 high school and university students during the coming summer. The Ontario Government initi-

ated a \$25,000,000 suit against Dow Chemical of Canada Ltd. for ecological damage to parts of the Great Lakes system. *Mar. 17*, Final volume of the report of the Prevost Commission of Inquiry into the administration of justice in Quebec tabled in the Quebec Assembly; recommendations included the giving of greater protection to individuals against encroachment by police, courts and prisons. *Mar. 19*, The fourth of five volumes of the Report of the Royal Commission on Pilotage, established in 1962, released. *Mar. 21*, Death in St. Boniface, Man., of former Senator Arthur L. Beaubien. *Mar. 22*, The Federal Government announced the allocation of about \$2,000,000 to hire 276 Franco-phone university graduates for the public service, to be employed in 10 departments in "positions where French is the language of work". *Mar. 24*, Report of the Quebec Police Commission into the 16-hour walkout Oct. 7, 1969, of the Montreal police, tabled in the Quebec Assembly; recommendations included the formation of a permanent plan to deal with "any eventuality", and the division of the Montreal Policemen's Brotherhood into separate units for officers and men. Retirement of Walter M. Aseltine of Saskatchewan from the Senate. *Mar. 26*, Death in Toronto of Nathan Cohen, well-known writer, broadcaster and theatre critic. *Mar. 29*, The Massey Medal for 1971 presented to Dr. J. Lewis Robinson, geographer, in recognition of his scholarship and contributions to knowledge of Canada, by Governor General Michener. Ralph E. Collins, an External Affairs Department official who was born in China and speaks the Chinese language, appointed Canada's first Ambassador to the People's Republic of China. *Mar. 30*, Retirement of Malcolm Hollett of Newfoundland from the Senate. *Mar. 31*, Retirement of James Gladstone, the first treaty Indian appointed to the Senate.

**April:** *Apr. 1*, The newly formed Law Reform Commission of Canada, under the chairmanship of Mr. Justice Patrick Hart of the Ontario Supreme Court, began a five-year re-evaluation of the principles underlying the criminal law process in Canada. *Apr. 2*, Robert Lemieux, FLQ lawyer, acquitted of a charge of obstructing justice, for lack of witnesses or proof. *Apr. 4*, Death in Vancouver of Maj.-Gen. Victor Wentworth Odium, distinguished Canadian soldier and diplomat. *Apr. 5*, A nation-wide railway strike averted when agreement was reached on a new three-year contract between engineers and the two major railways. Quebec's Gently nuclear power station near Trois-Rivières came into service—the first in the world to have a reactor fuelled with natural uranium and cooled by ordinary water. *Apr. 8*, The Federal Government announced its decision to withdraw from economic development or disposal an 870-sq. mile area along the South Nahanni River in the Northwest Territories pending a feasibility study on creating a national park there. *Apr. 10*, Death in Toronto of Manly Edward MacDonald, internationally known Canadian landscape artist. *Apr. 13*, The annual \$50,000 Royal Bank Award presented to Arthur Erickson of Vancouver, architect, designer of the Canadian pavilion at Expo '70 in Japan, Simon Fraser University in Burnaby, B.C., the Bank of Canada building in Ottawa, and others. The Toronto Maple Leafs and the New York Rangers hockey clubs and some of their players assessed heavy fines totalling \$16,500 for fighting on the ice during a game in New York. *Apr. 15*, Appointment of Dr. Harry Douglas Smith, former President of University of King's College in Halifax, as Nova Scotia's first ombudsman. *Apr. 18*, Four-day rebellion of 500 prisoners at Kingston penitentiary ended with the release of five guards held as hostages; 11 convicts were injured and one killed during the violence. *Apr. 19*, Dr. Charles Best, co-discoverer with the late Sir Frederick Banting of insulin in



the treatment of diabetes, honoured by the Royal Society in London, Eng., on the 50th anniversary of the discovery of insulin. Sierra Leone, a former British colony and protectorate that became an independent member of the Commonwealth in 1961, declared a republic. *Apr. 20*, Canada and the United States signed an agreement on a \$45,000,000 space satellite experiment to be launched in 1974; expected to cut the high costs of ground stations and put reception within financial reach of small, isolated communities. Death in Halifax of Hon. Henry P. MacKeen, Lieutenant-Governor of Nova Scotia from 1963 to 1968. *Apr. 22*, The 48-page diary of Louis Riel, metis leader, written during the 1885 Battle of Batoche, bought at auction in Montreal by Gene Rheame, former Canadian Member of Parliament, for \$26,500, with the intention of its remaining in Canada as a public document. *Apr. 24*, David Lewis elected national leader of the New Democratic Party, succeeding T. C. Douglas. *Apr. 25*, Three Soviet cosmonauts completed a space flight in *Soyuz 10*, docking with the unmanned scientific workshop *Salyut* to test a docking collar for possible use in building long-term orbital space platforms. *Apr. 29*, Hon. Eric Kierans resigned as Minister of Communications in the Federal Cabinet, in protest against the Government's economic policies. *Apr. 30*, The Federal Government allowed the Public Order (Temporary Measures) Act, brought into force Dec. 3, 1970, to lapse, and announced the establishment of a special joint Commons-Senate committee to draft a new law against terrorism. Leaders of the 13-day occupation of Sir George Williams University in 1969 and the destruction of its computer (one from Barbados and one from Dominica) sentenced to jail and fined. Quebec Prime Minister Bourassa announced plans for a \$6,000,000 hydro-electric power project to be constructed in the James Bay area—the largest such project so far undertaken in the Western Hemisphere.

**May:** *May 1*, New Statistics Act proclaimed; the Dominion Bureau of Statistics to be henceforth known as Statistics Canada, and the Dominion Statistician as Chief Statistician of Canada. *May 2-12*, H.M. Queen Elizabeth II, H.R.H. The Duke of Edinburgh and H.R.H. Princess Anne visited British Columbia in celebration of that province's 100th anniversary of entry into Confederation. *May 4*, A portion of the town of St. Jean Vianney, Que., was lost in a landslide that destroyed 36 homes and took 31 lives; the town and part of the neighbouring town of Shipshaw were closed permanently on May 27 and most of the inhabitants were to be relocated at Arvida or elsewhere. *May 13*, The Federal Government announced plans for the construction of a STOL airport in the centre of Montreal to link that city with a similar facility in Ottawa by the use of 14-passenger aircraft flying a 15- to 30-minute cycle. *May 16*, Death in Newbliss, Ireland, of Sir Tyrone Guthrie, world-renowned playwright and first artistic director of the Stratford Festival of plays inaugurated in 1954 in Stratford, Ont. *May 17-28*, Prime Minister and Mrs. Trudeau and a 21-member official party visited the U.S.S.R.; protocol signed providing for consultation and co-operation in economic, scientific and cultural spheres as well as political consultation, and the common problems of northern development discussed. *May 18*, The Montreal Canadiens won the Stanley Cup, symbol of hockey supremacy, over the Chicago Black Hawks in a best-of-seven series, the 10th Stanley Cup for the Canadiens in 15 years. The Federal Government made formal protest in Washington over the chasing of a Canadian fishing vessel by a U.S. Coast Guard cutter May 16, claiming the Canadian vessel was in Canadian waters at the time. Final report of the Barber Royal Commission on Farm Machinery, established in 1966, tabled in the House of Com-

mons; recommendations included the establishment of an independent agency to test and develop farm machines and the elimination of certain producer-dealer financing arrangements. *May 20*, Francis Simard of Montreal sentenced to life imprisonment for the murder of former Quebec Labour Minister Pierre Laporte. *May 21*, A special report to the Canadian Transport Commission on coastal shipping tabled in the House of Commons; recommendations included a "policy of Canadianization", which would require Canadian-flag vessels to handle all coastal shipping in areas where foreign competition is now permitted, and an extension of the definition of coastal shipping to include other forms of marine activity. Hon. Paul Hellyer resigned from the Liberal caucus to sit in Parliament as an Independent Liberal in protest against government policies. *May 22*, Official opening of Ontario Place, the \$23,000,000 provincial showplace constructed on the shore of Lake Ontario at Toronto. The Norwegian cruise ship *Meteor*, en route to Vancouver, caught fire in the Strait of Georgia; 32 crew members killed. *May 26*, A nation-wide citizens' political movement, Action Canada, launched by Paul Hellyer in attempt to exert pressure on the Federal Government on matters of tax cuts, unemployment, wage and price guidelines, etc. *May 28*, Announcement of award by H.M. Queen Elizabeth II of the distinctive Order of Merit to Rt. Hon. Lester B. Pearson, former Prime Minister of Canada; Dr. Wilder Penfield, Montreal neurosurgeon, is the only other Canadian recipient.

**June:** *June 1*, Thirteen prisoners charged with non-capital murder in the deaths of two other prisoners as a result of the April riot at Kingston penitentiary, one of whom, together with five others, was also charged with kidnapping six guards; on charge dismissed, five sentenced Aug. 27 to three years in addition to their present terms for forcible seizure of guards. *June 4*, Report of a special all-party Commons committee tabled in the House of Commons recommended firm limits on campaign spending by individual candidates and also by parties in federal elections. *June 8*, The largest commercial ship-building contract in Canadian history was announced at Sorel, Que., by Marine Industries Ltd. and two shipping firms in France; a federal subsidy of \$21,000,000 plus moderate government credit terms added in the agreement. *June 9*, Legislation passed in the House of Commons establishing the Canada Development Corporation, to help develop and maintain strong Canadian-owned and -managed corporations in the private sector and to provide greater opportunities for Canadians to invest in the economic development of Canada. *June 10*, Royal Assent given to legislation providing for the establishment of a Department of the Environment, the appointment of Ministries of State and a Postmaster General, and other Federal Government organization changes. *June 11*, Canada and the United States agreed in principle on joint effort to combat pollution in the Great Lakes. *June 12*, Dr. Charles Best, co-discoverer with the late Sir Frederick Banting of insulin in the treatment of diabetes, made a Companion of Honour in the Queen's birthday honours list. *June 14*, Michel Viger of St. Luc, Que., sentenced to eight years in penitentiary for his part in hiding Jacques and Paul Rose and Francis Simard, convicted murderers of Pierre Laporte. *June 14-17*, Federal-provincial conference on the Constitution held in Victoria; a proposed constitutional charter released following the conference was rejected June 23 by Quebec Prime Minister Bourassa because it did not give Quebec "legislative primacy" in the field of income security. *June 16*, Death in Toronto of Very Rev. George Campbell Pidgeon, first Moderator of the United Church of Canada. *June 18*, C. Stafford Smythe and Harold Ballard of Toronto arrested on charges of theft and fraud



involving funds of Maple Leaf Gardens. *June 19*, The Queen's Plate, Canadian thoroughbred classic at Woodbine race track, won by Kennedy Road, owned by Mrs. Arthur Stollery of Toronto. *June 21*, The Ontario Government advanced the first \$351,000 of a \$961,000 loan to the publishing firm of McClelland and Stewart Ltd. to help keep the firm under Canadian control. *June 23*, General Election held in Saskatchewan; New Democratic Party led by Allan Blakeney defeated the Liberal government of Premier Thatcher, winning 45 of the 60 seats in the legislature. A new Unemployment Insurance Act received Royal Assent, increasing coverage and rates of benefit; the Federal Government is required to more than double its present level of contributions to the unemployment insurance account. *June 24*, Dr. Charles Best, co-discoverer with the late Sir Frederick Banting of insulin in the treatment of diabetes, chosen first winner of the Pan American Prize, awarded by the São Paulo Biennial Foundation of Brazil. *June 24-July 3*, Visit of Diori Hamani, President and H. E. Mai Maigana, Secretary of State of Niger, to Canada. *June 24*, The Federal Government announced a \$1,500,000 program to compensate Canadian fishermen and processors for mercury contamination of fish in Atlantic and inland waters.

**July:** *July 1*, Centennial of the Province of British Columbia celebrated; Prime Minister Trudeau presented gifts from the "people of Canada" of a \$2,500,000 museum to house native artifacts on the campus of the University of British Columbia and a \$4,500,000 "Second Century Fund" to develop natural conservation areas in the province. *July 2*, Premier Chou En-lai of the People's Republic of China received the first Canadian ministerial mission ever to visit that country; results of the mission include China's participation in the Canadian National Exhibition in Toronto and Canada's presentation of a trade fair in Peking in 1972, and potential air agreement and greater trade between the two countries. *July 12-13*, Federal-provincial conference of Finance Ministers held in Ottawa, at which federal concessions included extension of equalization payments to the provinces, two-year continuation of federal post-secondary education aid and consideration of extension of the guarantee of no loss in provincial revenues following the coming into force of the new federal income tax program. *July 13*, The Federal and Ontario Governments announced agreement for development, as a semi-wilderness area, of Pukaskwa National Park on the north shore of Lake Superior; to be the largest national park in Eastern Canada. *July 14*, Legislation passed in Quebec establishing a Crown corporation to oversee development of the James Bay power project. *July 23*, The first Ambassador to Canada of the People's Republic of China, Huang Hua, arrived in Ottawa. Appointment announced of Robert B. Bryce, former Deputy Minister of Finance and a senior public servant and adviser to five Prime Ministers, as Canadian Director of the International Monetary Fund. *July 24*, Death in Regina of W. Ross Thatcher, former Premier of Saskatchewan. *July 26*, Legal action, initiated Feb. 2 against the Ontario Securities Commission on behalf of the 3,400 Ontario investors who lost heavily when Prudential Finance Corp. Ltd. collapsed in November 1966, refused by a Justice of the Ontario Supreme Court because the Commission is not an entity which can be sued for damages in its own name. *July 26-31*, U.S. spacecraft *Apollo XV* on successful flight to the moon, carrying astronauts David Scott, James Irwin and Alfred Worden and the first vehicle to travel on the moon surface. *July 29*, The schooner *Bluenose II*, replica of the famed racing schooner *Bluenose*, presented to the Nova Scotia Government by the Oland family of Halifax; to be reconditioned and put to sea as a floating attraction or berthed as a permanent museum.

**August:** *Aug. 5*, Conference of provincial premiers opened in Victoria; agreement that priority be given to environmental questions by the Council of Resource Ministers at their meeting in September. *Aug. 13*, Various charges laid under the War Measures Act against 32 persons, including labour leader Michel Chartrand, lawyer Robert Lemieux and teacher Charles Gagnon, were suspended by the Crown. The sixth Pan-American Games closed in Cali, Colombia, after 14 days of competition in 20 sports; Canadian competitors came third after the United States and Cuba with 19 gold and 20 silver medals, and first with 42 bronze medals. The Federal and Ontario Governments announced a \$262,000,000 four-year program to clean up pollution in Lake Erie, Lake Ontario and the international section of the St. Lawrence River, a preliminary to a formal agreement between Canada and the United States for clearing the Great Lakes of pollution. *Aug. 16*, U.S. President Nixon announced new economic policies, including a special import surcharge of up to 10 p.c. on all dutiable goods, a 90-day wage, price and rent freeze, new tax incentives for industry and, in effect, a floating of the U.S. dollar, a surcharge that would have serious impact on Canada's exports to the U.S.; Canada made representations to the U.S. without success. *Aug. 15-21*, The first Banff Festival of the Arts held, marking the culmination of nearly 40 years of effort in developing the Banff School of Fine Arts to its present high standard. *Aug. 16*, Hurricane Beth caused severe flooding and torrential rains, combined with winds up to 70 miles an hour, and resulted in extensive damage to Nova Scotia's coastal areas. Saskatchewan applied for federal aid for farmers whose crops were damaged by an infestation of Bertha army worms; about 1,250,000 acres in the Prairie Provinces were affected and 35 persons poisoned from using the chemical Lannate, the effects of which are of short duration in comparison with those of DDT. *Aug. 17*, The Federal Government announced creation of 457 French-speaking units in the public service—one of the recommendations of the Royal Commission on Bilingualism and Biculturalism; about 29,000 public servants to be placed in these units. Death in Halifax of Senator Earl W. Urquhart of Nova Scotia. *Aug. 24*, The Federal Government released its White Paper on Defence; highlights included Armed Forces aid in civil emergencies, expanded assistance in surveillance of coastal waters in pollution control off the coasts, policing of territorial seas and fishing zones and maintenance of Canada's NATO forces at present strength. *Aug. 26*, Report of the Special Committee on Youth, conducted for the Department of the Secretary of State, released; recommendations including disbanding the Company of Young Canadians, greater federal voice in education, elimination of the cadet program and legalization of marijuana. *Aug. 27*, The Canadian Transport Commission ruled that U.S. charter aircraft flying into northwestern Ontario must now land at a licensed tourist resort or air base upon entry and at a Canadian customs post on the return flight. *Aug. 30*, General Election held in Alberta; the Progressive Conservative party led by Peter Lougheed defeated the government under Premier Harry Strom, ending 36 years of Social Credit government; party standing, 49 Progressive Conservative, 25 Social Credit and 1 New Democratic Party. *Aug. 31*, Premier Davis of Ontario announced that provincial grants would not be extended to Grades 11, 12 and 13 in the Roman Catholic Schools.

**September:** *Sept. 1*, The British Columbia law banning alcohol and tobacco advertising went into effect. *Sept. 4*, Death in Fernie, B.C., of Senator James Gladstone, first Canadian treaty Indian representative in the Upper House. *Sept. 6*, Death in Montreal of Dr. Phil Edwards, medical authority on tropical and chest diseases and one of

Canada's most noted runners, having won five bronze medals at the 1928, 1932 and 1936 Olympics. *Sept. 7*, Regina, Sask., inaugurated public transit service allowing customers to telephone for bus service to their doors. *Sept. 8*, Col. R. S. McLaughlin, Chairman of the Board of General Motors Canada Ltd. and a pioneer of the Canadian automobile industry, celebrated his 100th birthday in Oshawa. Gordon Howe, native of Floral, Sask., and famed hockey star of the Detroit Red Wings, retired from professional hockey. *Sept. 10*, Completion of the extension of the British Columbia Railway from Fort St. John to Fort Nelson officially marked by Premier Bennett. *Sept. 11*, Death of Nikita S. Krushchev, former Premier of the U.S.S.R. *Sept. 13*, Ontario announced free hospital and medical care for persons aged 65 and over beginning Jan. 1, 1972 (extended Sept. 25 to their dependants) and for low-income earners beginning Apr. 1, 1972. Ontario announced a capital aid program to help save Ontario-based Canadian publishing firms from foreign ownership. *Sept. 15*, Two university students employed as the first female pages in the Senate. *Sept. 16*, Death in Ottawa of Frank H. Underhill, noted historian, political thinker and former professor at the Universities of Saskatchewan and Toronto. *Sept. 18*, John Bassett, publisher of *The Telegram* in Toronto, Canada's fourth largest newspaper, announced that, after 95 years, publication would cease. *Sept. 18-Nov. 6*, A series of protests against the proposed U.S. plan to detonate a five-megaton nuclear weapon underground on Amchitka in the Aleutian Islands; no major developments as a result of the blast were reported. *Sept. 21*, The major Canadian cigarette manufacturers announced cessation of broadcast advertising Jan. 1, 1972. *Sept. 22*, Bernard Lortie found guilty of kidnapping Pierre Laporte, former Quebec labour minister; sentenced Nov. 22 to 20 years in prison plus six months for contempt of court. *Sept. 25*, The International Typographical Union announced the end of its seven-year strike against three Toronto newspapers, *The Star*, *The Telegram* and *The Globe and Mail*. *Sept. 28*, Federal legislation passed to subsidize manufacturers and processors whose exports are threatened by the U.S. surcharge, to remain in effect for the life of the surcharge.

**October:** Visit to Canada of the Archbishop of Canterbury, the Most Rev. Arthur Michael Ramsey. *Oct. 1*, At the 23rd annual Canadian Film Awards, the National Film Board won 19 of 39 awards; best feature film was *Mon Oncle Antoine*, which took seven other awards. Agreement reached between the Governments of Canada and Quebec recognizing and specifying Quebec's role in the international Agency for Cultural and Technical Co-operation of French-speaking Countries. *Oct. 2*, Death in Fredericton of Hon. Wallace S. Bird, Lieutenant-Governor of New Brunswick. *Oct. 4*, Announcement of discovery of crude oil, condensate and natural gas on Sable Island, 175 miles east of Halifax. *Oct. 6-10*, Visit to Ottawa of Prime Minister Tun Abdul Razak of Malaysia and senior Malaysian officials for discussion of bilateral and international issues of mutual interest. *Oct. 7*, The Federal Government announced complete reform of the Canadian penitentiary system, stressing the rehabilitation of prisoners rather than the protection of society. *Oct. 8*, The Federal Court of Canada ruled that an Indian woman cannot be deprived of her rights as an Indian because of her marriage to a non-Indian; the first time a Canadian court has applied the 11-year-old Bill of Rights to the issue of sexual equality. *Oct. 10*, Real Caouette re-elected leader of the Social Credit Party in Canada. *Oct. 11*, Death in Ottawa of Hon. James D. Hyndman, distinguished judge and public servant. *Oct. 13*, Death in Toronto of Stafford Smythe, President of Maple Leaf Gardens Ltd. *Oct. 13-14*, The 2500th anniversary of the Persian

Empire celebrated in Persepolis, Iran; Canada represented by Governor General Michener and Mrs. Michener. *Oct. 14*, The Federal Government announced a 3-p.c. reduction in personal income taxes and a 7-p.c. reduction in corporate taxes for the period July 1-Dec. 31, 1971, following the release of information that unemployment had reached the highest level since 1961. *Oct. 17-26*, Premier Alexei Kosygin visited Canada, the first head of government of the Soviet Union to do so; discussions related to the ending of the arms race, working toward complete disarmament, co-operation in fields of trade, science and technology, and cultural activities, and co-operation in measures against Arctic pollution. *Oct. 21*, General Election in Ontario; Progressive Conservative government led by Premier Davis won a decisive victory; party standing, 78 Progressive Conservative, 20 Liberal, 19 New Democratic Party. Two bank accountants, Archibald MacLeod and William MacDonald of Summerside, P.E.I., sentenced to two years in penitentiary for theft of \$414,747 from the local Canadian Imperial Bank of Commerce after voluntarily returning from the United States with most of the money stolen and apologizing for the trouble they had caused. *Oct. 25*, The United Nations General Assembly approved the seating of the People's Republic of China and the expulsion of the representative of the Republic of China (Nationalist China). *Oct. 28*, General Election held in Newfoundland; Liberal Government under Premier Smallwood suffered heavy losses but the election results were indecisive; party standing, 20 Liberal, 21 Progressive Conservative and 1 New Labrador Party. The British House of Commons approved the entry of Britain into the European Common Market. *Oct. 29*, Violence marked a labour-organized protest march against a lockout and strike at the Montreal daily newspaper *La Presse*, with about 160 persons injured following the decision to suspend publication until the dispute, resulting in a lockout July 19 after six months of unsuccessful negotiations on a new labour contract, could be resolved. The Quebec English-language daily newspaper, the *Chronicle-Telegraph*, announced it would cease daily publication after 207 years and become a weekly.

**November:** *Nov. 1*, Toronto's newest daily newspaper, *The Sun*, staffed mainly by former employees of *The Telegram*, began publication. *Nov. 1-2*, Federal and provincial finance ministers met in Ottawa; discussions related to the Federal Government's new tax proposals, the machinery for redistributing wealth among the provinces and the future of health programs. *Nov. 2*, The Nobel Prize in chemistry for research in molecular spectroscopy awarded to Dr. Gerhard Herzberg of the National Research Council of Canada, the first Canadian achievement in the physical sciences to be so honoured. The Federal Government announced that its experimental hydrofoil ship for anti-submarine warfare, the *Bras d'Or*, developed at a cost of \$52,200,000, would be "mothballed" for at least five years because of cost and current circumstances. *Nov. 2-7*, First state visit to Canada of the President of Yugoslavia Josip Broz Tito and Mrs. Tito; agreements reached re updating trade relations, closer contacts and exchanges in science and technology, and the encouragement of travel between the two countries. *Nov. 4*, The Canadian Transport Commission outlined proposals for integrating, by late 1972, the transcontinental passenger-train services of the two major railways. *Nov. 8*, Arrival in the National Library of the first 20,000 of a shipment of 30,000 frames of microfilm, part of a collection of ancient Jewish and Hebraic manuscripts, the originals of which have been stored in Russia since the 1917 communist revolution. Federal Minister of the Environment Davis, in speaking to a UN conference, urged that Canada and other nations with ocean coastlines

take unilateral action to protect their environments from pollution since no international law or regulation exists to which a state may appeal for protection or reparation in cases of pollution damages to its coasts; and recommended that Canada's zone of unilaterally declared pollution control be 100 miles out into the Pacific and 400 miles from the Newfoundland coast to the limits of the Canadian continental shelf. *Nov. 9*, The Canadian Pacific Railway Company announced the withdrawal of the *Empress of Canada* from transatlantic and cruise service, ending decades of such service by the company. *Nov. 10*, The Canadian Broadcasting Corporation and *The Financial Post* jointly received the first Michener Award for Journalism for their presentation of a television program and a printed report on the air charter business. Report of the Senate Committee on Poverty released; recommendations included a guaranteed annual income at a basic \$3,500 for a family of four, to be provided for Canadian citizens but not for single persons under age 40. *Nov. 12*, Excerpts from the report of a committee headed by Minister of National Revenue Gray into foreign investment in Canada, never officially released, were published in *The Canadian Forum*. *Nov. 14*, Death in Rose-town, Sask., of Hon. W. M. Aseltine, former Leader of the Senate and member of the Privy Council. *Nov. 15*, Mrs. Grace MacInnis, M.P., for Vancouver-Kingsway, named Woman of the Year by the B'nai B'rith Women's Council of Toronto. *Nov. 15-17*, Economic conference of provincial premiers with Prime Minister Trudeau convened in Ottawa; no major decisions reported but agreement reached on closer co-operation in developing future winter works programs and student projects. *Nov. 17*, Death in Cobourg, Ont., of Senator Arthur W. Roebuck, after a distinguished career as lawyer, labour conciliator, journalist and politician. *Nov. 22*, Twelve prisoners accused in the beating deaths of two other Kingston penitentiary inmates during the April 1971 riot convicted of manslaughter and sentenced to additional terms ranging from two to 15 years. *Nov. 24*, Norman McLaren of the National Film Board of Canada awarded the Outstanding Achievement Award of the Public Service of Canada for 1971. *Nov. 27*, The Grey Cup, symbol of Canadian professional football supremacy, won by the Calgary Stampeders over the Toronto Argonauts in Vancouver, by a score of 14 to 11. *Nov. 30*, Paul Rose, serving a life sentence for the murder of Quebec Labour Minister Pierre Laporte in October 1970, sentenced to a concurrent life term for the kidnapping of Mr. Laporte.

**December:** *Dec. 2*, The Federal Government announced the signing of fishing and sealing agreements between Canada and Norway, terminating the latter's right to fish within Canada's 12-mile limit except for the Gulf of St. Lawrence where seasons will be limited, and permitting Norway to take seals as close as three miles but splitting the

seal harvest in the area between the two countries. Churchill Forest Industries Ltd., The Pas, an integrated forestry operation begun in 1966 by Swiss, American and German interests and backed by the Manitoba Development Fund, declared bankrupt; the Manitoba Government had assumed control on Jan. 8 on grounds that the company defaulted in financing arrangements and a judicial inquiry was begun July 7. *Dec. 3*, A Canada-U.S. extradition treaty signed in Washington, D.C.; the loophole under which Hal Banks was able to escape facing charges in Canada was closed with the addition of conspiracy to commit assault to the list of extraditable offences, and unlawful seizure of aircraft (hijacking) was also added. *Dec. 6*, Prime Minister Trudeau in conference with U.S. President Nixon regarding international affairs and economic issues; no specific conclusions reported. *Dec. 9-10*, An underground fire caused by collision of two trains in the Montreal subway system destroyed 36 subway cars and resulted in the death of the motorman of the train. *Dec. 11*, Death in Vancouver of Frank Ross, former Lieutenant-Governor of British Columbia. Death in Streetsville, Ont., of Mrs. Kate Aitken, for 25 years one of Canada's best known radio-voices, writer, and director of the CNE women's activities and educational work. *Dec. 18*, The Group of Ten, composed of major non-Communist trading countries, met in Washington, D.C.; a monetary agreement reached, highlights of which were the immediate lifting of the 10-p.c. import surcharge imposed in August by the United States, devaluation of the U.S. dollar through an increase in the price of gold, and continuation of the floating of the Canadian dollar. More than \$1,000,000 stolen from the main branch of the Royal Bank of Canada in Windsor, Ont.; six persons arrested a few days later and some of the money recovered. *Dec. 21*, Kurt Waldheim of Austria nominated to be the fourth Secretary-General of the United Nations, succeeding U Thant. *Dec. 23*, Royal Assent given to legislation concerning a completely revised federal income tax system, following the Carter Royal Commission on Taxation (established in 1962) Report of 1966 and the subsequent government White Paper, introduced in the House of Commons by Finance Minister Benson. *Dec. 25*, A son, Justin Pierre, was born to Prime Minister and Mrs. Trudeau in Ottawa. *Dec. 26*, Yves Geoffroy, a convicted murderer who had been granted a three-day pass from St. Vincent de Paul penitentiary to marry, failed to return. *Dec. 31*, The Canada Council announced the award of the 1971 \$15,000 Molson prizes for cultural achievement to Maureen Forrester, concert singer; Rina Lasnier, Quebec poet; and Norman McLaren, filmmaker. In a poll of Canadian women newspaper and broadcast editors, Margaret Trudeau, who married the Prime Minister in March, was voted most newsworthy; Grace MacInnis, M.P., most newsworthy in public affairs; Betsy Clifford, in sports; and Anne Murray, in entertainment.



## APPENDIX I

### CONSTITUTION AND GOVERNMENT

Certain information given in Chapter II on Constitution and Government (most of which is dated June 30, 1971) is updated in this Appendix to May 1, 1972. Appointments during that period to the Queen's Privy Council for Canada, the Cabinet and the Senate are included in the Register of Official Appointments, pp. 1345-1353.

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A number of changes were made in the Federal Cabinet between Oct. 20, 1971 (the date of the listing on p. 88) to May 1, 1972; its composition on the latter date was as follows:—

<i>Office</i>	<i>Name</i>
Prime Minister.....	Rt. Hon. PIERRE ELLIOTT TRUDEAU
Leader of the Government in the Senate.....	Hon. PAUL JOSEPH JAMES MARTIN
Secretary of State for External Affairs.....	Hon. MITCHELL WILLIAM SHARP
Minister of Veterans Affairs.....	Hon. ARTHUR LAING
President of the Queen's Privy Council for Canada.....	Hon. ALLAN JOSEPH MACEACHEN
President of the Treasury Board.....	Hon. CHARLES MILLS DRURY
Minister of National Defence.....	Hon. EDGAR JOHN BENSON
Minister of Industry, Trade and Commerce.....	Hon. JEAN-LUC PEPIN
Minister of Regional Economic Expansion.....	Hon. JEAN MARCHAND
Postmaster General.....	Hon. JOSEPH JULIEN JEAN-PIERRE CÔTÉ
Minister of Finance.....	Hon. JOHN NAPIER TURNER
Minister of Indian Affairs and Northern Development.....	Hon. JOSEPH-JACQUES-JEAN CHRÉTIEN
Minister of Manpower and Immigration.....	Hon. BRYCE STUART MACKASEY
Minister of Energy, Mines and Resources.....	Hon. DONALD STOVEL MACDONALD
Minister of National Health and Welfare.....	Hon. JOHN CARR MUNRO
Secretary of State of Canada.....	Hon. GÉRARD PELLETIER
Minister of the Environment and Minister of Fisheries.....	Hon. JACK DAVIS
Minister of Agriculture.....	Hon. HORACE ANDREW OLSON
Minister of Public Works.....	Hon. JEAN-EUDES DUBÉ
Minister of State for Urban Affairs.....	Hon. STANLEY RONALD BASFORD
Minister of Transport.....	Hon. DONALD CAMPBELL JAMIESON
Minister of Consumer and Corporate Affairs.....	Hon. ROBERT KNIGHT ANDRAS
Minister of Supply and Services.....	Hon. JAMES ARMSTRONG RICHARDSON
Minister of Justice.....	Hon. OTTO EMIL LANG
Minister of National Revenue.....	Hon. HERBERT ESER GRAY
Minister of Communications.....	Hon. ROBERT DOUGLAS GEORGE STANBURY
Solicitor General of Canada.....	Hon. JEAN-PIERRE GOYER
Minister of State for Science and Technology.....	Hon. ALASTAIR WILLIAM GILLESPIE
Minister of Labour.....	Hon. MARTIN PATRICK O'CONNELL
Minister of State.....	Hon. PATRICK MORGAN MAHONEY

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During the period June 30, 1971 to May 1, 1972, the following Senators retired, resigned or died:—

Thérèse F. CASGRAIN (retired).....	Montreal, Que.
Hédard J. ROBICHAUD (resigned).....	Caraguet, N.B.
Earl Wallace URQUHART (died).....	West Bay, N.S.
Arthur Wentworth ROEBUCK (died).....	Toronto, Ont.
Harry A. WILLIS (died).....	Toronto, Ont.

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F. MOORES, member of Parliament for Bonavista-Trinity-Conception, Nfld., resigned Sept. 27, 1971. By-election to be held Oct. 16, 1972.



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P. G. GIVENS, member of Parliament for York West, Ont., resigned Oct. 6, 1971. By-election to be held Oct. 16, 1972.

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In a federal by-election held Nov. 8, 1971 in the electoral district of Assiniboia, Sask., Bill KNIGHT (NDP) was elected to replace A. B. DOUGLAS (Lib.), who died Mar. 6, 1971.

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The General Election held in Newfoundland on Oct. 28, 1971 did not give a clear majority to either political party. As a consequence, a second General Election was held on Mar. 24, 1972, which resulted in a return of 33 Progressive Conservatives and 9 Liberals. Following is the Second Ministry of Newfoundland as at May 1, 1972:—

<u>Office</u>	<u>Name</u>
Premier.....	Hon. FRANK D. MOORES
Minister of Justice and President of the Council.....	Hon. T. ALEX HICKMAN
Minister of Finance and Minister of Economic Development..	Hon. JOHN C. CROSBIE
Minister of Mines, Agriculture and Resources.....	Hon. C. WILLIAM DOODY
Minister of Provincial Affairs and Minister of Labrador Affairs	Hon. A. J. MURPHY
Minister of Municipal Affairs and Housing.....	Hon. HAROLD A. COLLINS
Minister of Social Services and Rehabilitation.....	Hon. THOMAS HICKEY
Minister of Intergovernmental Affairs.....	Hon. GERALD OTTENHEIMER
Minister of Health.....	Hon. AUGUSTUS T. ROWE
Minister of Supply and Services.....	Hon. GORDON W. DAWE
Minister of Labour.....	Hon. EDWARD MAYNARD
Minister of Community and Social Development.....	Hon. AUBREY J. SENIOR
Minister of Education and Youth.....	Hon. JOHN A. CARTER
Minister of Highways and Minister of Public Works.....	Hon. T. C. FARRELL
Minister of Fisheries.....	Hon. ROY CHEESEMAN
Minister without Portfolio.....	Hon. WILLIAM W. MARSHALL

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A General Election was held in Ontario on Oct. 21, 1971, which resulted in a return of 78 Progressive Conservatives, 20 Liberals and 19 New Democratic Party. Following is the Eighteenth Ministry of Ontario as at May 1, 1972:—

<u>Office</u>	<u>Name</u>
Prime Minister and President of the Council.....	Hon. WILLIAM G. DAVIS
Provincial Secretary for Justice.....	Hon. ALLAN F. LAWRENCE
Treasurer of Ontario, Minister of Economics and Intergovernmental Affairs.....	Hon. DARCY McKEOUGH
Provincial Secretary for Social Development.....	Hon. ROBERT WELCH
Provincial Secretary for Resources Development.....	Hon. BERT LAWRENCE
Solicitor General.....	Hon. JOHN YAREMKO
Minister of Revenue.....	Hon. ALLAN GROSSMAN
Minister of Agriculture and Food.....	Hon. WILLIAM A. STEWART
Chairman, Management Board of Cabinet.....	Hon. CHARLES MACNAUGHTON
Minister of the Environment.....	Hon. JAMES A. C. AULD
Minister of Community and Social Services.....	Hon. RENE BRUNELLE
Attorney General.....	Hon. DALTON A. BALES
Minister of Education.....	Hon. THOMAS L. WELLS
Minister of Labour.....	Hon. FERN GUINDON
Minister of Industry and Tourism.....	Hon. JOHN WHITE
Minister of Colleges and Universities.....	Hon. GEORGE A. KERR
Minister of Correctional Services.....	Hon. C. J. S. APPS
Minister of Transportation and Communications.....	Hon. GORDON CARTON
Minister of Natural Resources.....	Hon. LEO BERNIER
Minister of Consumer and Commercial Relations.....	Hon. ERIC WINKLER
Minister of Government Services.....	Hon. JAMES W. SNOW
Minister of Health.....	Hon. RICHARD T. POTTER

## APPENDIX II

### POPULATION

As indicated on p. 204, advance information that has become available from the 1971 Census by mid-May 1972 is summarized in this Appendix. Tables showing population totals, sex and age distribution and official language spoken as mother tongue, by province, as well as the populations of electoral districts and of cities, towns and villages of 1,000 or more persons, as at June 1, 1971, are presented here without textual comment. Figures for certain preceding censuses are given for comparison. Census reports, available from Statistics Canada, contain detailed results of the 1971 Census and summary statistics for earlier censuses may be found in the 1970-71 and preceding editions of the Canada Year Book.

#### 1.—Numerical Distribution of Population by Province, and Percentage Change from Preceding Census, Census Years 1961, 1966 and 1971

Province or Territory	Numerical Distribution			Percentage Change	
	1961	1966	1971	1961-66	1966-71
Newfoundland.....	457,853	493,396	522,104	7.8	5.8
Prince Edward Island.....	104,629	108,535	111,641	3.7	2.9
Nova Scotia.....	737,007	756,039	788,960	2.6	4.4
New Brunswick.....	597,936	616,788	634,557	3.2	2.9
Quebec.....	6,259,211	5,780,845	6,027,764	9.9	4.3
Ontario.....	6,236,092	6,960,870	7,703,106	11.6	10.7
Manitoba.....	921,686	963,066	988,247	4.5	2.6
Saskatchewan.....	925,181	955,344	926,242	3.3	-3.0
Alberta.....	1,331,944	1,463,203	1,627,874	9.9	11.3
British Columbia.....	1,629,082	1,873,674	2,184,621	15.0	16.6
Yukon Territory.....	14,628	14,382	18,388	-1.7	27.9
Northwest Territories.....	22,998	28,738	34,807	25.0	21.1
<b>Canada.....</b>	<b>18,238,247</b>	<b>20,014,880</b>	<b>21,568,311</b>	<b>9.7</b>	<b>7.8</b>

#### 2.—Sex Distribution of the Population, by Province, Census Years 1966 and 1971

Province or Territory	1966			1971		
	Male	Female	Total	Male	Female	Total
	No.	No.	No.	No.	No.	No.
Newfoundland.....	252,125	241,271	493,396	266,107	255,997	522,104
Prince Edward Island.....	54,974	53,561	108,535	56,226	55,415	111,641
Nova Scotia.....	380,517	375,522	756,039	396,467	392,493	788,960
New Brunswick.....	310,145	306,643	616,788	319,422	315,135	634,557
Quebec.....	2,885,927	2,894,918	5,780,845	2,994,547	3,033,217	6,027,764
Ontario.....	3,479,149	3,481,721	6,960,870	3,840,906	3,862,200	7,703,106
Manitoba.....	484,266	478,800	963,066	494,610	493,637	988,247
Saskatchewan.....	489,040	466,304	955,344	470,724	455,518	926,242
Alberta.....	746,245	716,958	1,463,203	827,785	800,089	1,627,874
British Columbia.....	948,585	925,089	1,873,674	1,100,375	1,084,246	2,184,621
Yukon Territory.....	7,805	6,577	14,382	9,920	8,468	18,388
Northwest Territories.....	15,566	13,172	28,738	18,280	16,527	34,807
<b>Canada.....</b>	<b>10,054,344</b>	<b>9,960,536</b>	<b>20,014,880</b>	<b>10,795,369</b>	<b>10,772,942</b>	<b>21,568,311</b>

## 3.—Age Distribution of the Population, Census Years 1966 and 1971

Age Group	1966		1971	
	No.	P.C. of Total	No.	P.C. of Total
0-4.....	2,197,387	11.0	1,816,155	8.4
5-9.....	2,300,857 <sup>r</sup>	11.5	2,254,005	10.5
10-14.....	2,093,513	10.5	2,310,738	10.7
15-19.....	1,837,725	9.2	2,114,346	9.8
20-24.....	1,461,298	7.3	1,889,403	8.8
25-34.....	2,483,491	12.4	2,889,545	13.4
35-44.....	2,543,172	12.7	2,526,398	11.7
45-54.....	2,483,179	10.4	2,291,578	10.6
55-64.....	1,479,710	7.4	1,731,738	8.0
65-69.....	531,709	2.7	619,958	2.9
70+.....	1,007,839	5.0	1,124,447	5.2
<b>Totals.....</b>	<b>20,014,880</b>	<b>100.0</b>	<b>21,568,311</b>	<b>100.0</b>
18 and over.....	12,315,787	61.5	13,872,498	64.3
21 and over.....	11,260,202	56.3	12,692,022	58.8

## 4.—Official Language Spoken as Mother Tongue, by Province, Censuses 1961 and 1971

Province or Territory	1961				1971			
	English	French	Other	Total	English	French	Other	Total
Nfld.....	No. 451,530	3,150	3,173	457,853	514,516	3,639	3,949	522,104
	p.c. 98.6	0.7	0.7	100.0	98.5	0.7	0.8	100.0
P.E.I.....	No. 95,564	7,958	1,107	104,629	103,102	7,363	1,176	111,641
	p.c. 91.3	7.6	1.1	100.0	92.4	6.6	1.1	100.0
N.S.....	No. 680,233	39,568	17,206	737,007	733,556	39,333	16,071	788,960
	p.c. 92.3	5.4	2.3	100.0	93.0	5.0	2.0	100.0
N.B.....	No. 378,633	210,530	8,773	597,936	410,400	215,727	8,430	634,557
	p.c. 63.3	35.2	1.5	100.0	64.7	34.0	1.3	100.0
Que.....	No. 697,402	4,269,689	292,120	5,259,211	789,185	4,867,250	371,329	6,027,764
	p.c. 13.3	81.2	5.6	100.0	13.1	80.7	6.2	100.0
Ont.....	No. 4,834,623	425,302	976,167	6,236,092	5,971,570	482,042	1,249,494	7,703,106
	p.c. 77.5	6.8	15.7	100.0	77.5	6.3	16.2	100.0
Man.....	No. 584,526	60,899	276,261	921,686	662,721	60,547	264,979	988,247
	p.c. 63.4	6.6	30.0	100.0	66.2	6.1	26.8	100.0
Sask.....	No. 638,156	36,163	250,862	925,181	685,919	31,605	208,718	926,242
	p.c. 69.0	3.9	27.1	100.0	74.1	3.4	22.5	100.0
Alta.....	No. 962,319	42,276	327,349	1,331,944	1,263,935	46,498	317,441	1,627,874
	p.c. 72.2	3.2	24.6	100.0	77.6	2.9	19.5	100.0
B.C.....	No. 1,318,498	26,179	284,405	1,629,082	1,807,253	38,034	339,334	2,184,621
	p.c. 80.9	1.6	17.5	100.0	82.7	1.7	15.5	100.0
Y.T.....	No. 10,869	443	3,316	14,628	15,346	450	2,592	18,388
	p.c. 74.3	3.0	22.7	100.0	83.5	2.4	14.1	100.0
N.W.T.....	No. 8,181	994	13,823	22,998	16,306	1,162	17,339	34,807
	p.c. 35.6	4.3	60.1	100.0	46.9	3.3	49.8	100.0
<b>Canada.....</b>	<b>No. 10,660,534</b>	<b>5,123,151</b>	<b>2,454,562</b>	<b>18,238,247</b>	<b>12,973,809</b>	<b>5,793,650</b>	<b>2,800,852</b>	<b>21,568,311</b>
	<b>p.c. 58.5</b>	<b>28.1</b>	<b>13.5</b>	<b>100.0</b>	<b>60.2</b>	<b>26.9</b>	<b>13.0</b>	<b>100.0</b>

## 5.—Population by Federal Electoral District, 1971

NOTE.—Comparable 1966 Census figures are given in Table 10 on pp. 100-105 of this volume.

Electoral District	Number	Electoral District	Number	Electoral District	Number
<b>Newfoundland</b> .....	<b>522,104</b>	Labelle.....	82,228	Hamilton Mountain.....	106,266
Bonavista-Trinity-Con-		Lac-Saint-Jean.....	56,862	Hamilton-Wentworth.....	99,169
ception.....	69,543	Langelier.....	58,559	Hamilton West.....	81,664
Burin-Burgeo.....	54,044	Lapointe.....	72,451	Hastings.....	64,328
Gander-Twillingate.....	71,480	Laprairie.....	131,675	Huron.....	58,515
Grand Falls-White Bay-		Lévis.....	80,037	Kenora-Rainy River.....	54,853
Labrador.....	75,106	Longueuil.....	112,703	Kent-Essex.....	55,580
Humber-St. George's-		Lotbinière.....	70,964	Kingston and The	
St. Barbe.....	82,263	Louis-Hébert.....	106,928	Islands.....	82,907
St. John's East.....	87,477	Manicouagan.....	80,461	Kitchener.....	106,127
St. John's West.....	82,191	Matane.....	48,373	Lambton-Kent.....	67,892
		Montmorency.....	116,204	Lennox-Renfrew-	
<b>Prince Edward Island</b> .....	<b>111,641</b>			Carleton.....	63,818
Cardigan.....	23,363	Montreal Area—		Leeds.....	66,263
Egmont.....	30,629	Ahuntsic.....	90,537	Lincoln.....	84,935
Hillsborough.....	35,639	Dollard.....	123,429	London.....	89,221
Malpeque.....	22,010	Duverney.....	112,102	London East.....	106,317
		Gamelin.....	92,533	Middlesex.....	92,814
<b>Nova Scotia</b> .....	<b>788,960</b>	Hochelaga.....	65,393	Niagara Falls.....	89,537
Annapolis Valley.....	74,123	Lachine.....	92,202	Nickel Belt.....	85,577
Cape Breton-East Rich-		Lafontaine.....	70,166	Nipissing.....	67,312
mond.....	64,371	LaSalle.....	116,235	Norfolk-Haldimand	
Cape Breton Highlands-		Laurier.....	67,023	Northumberland—	
Canso.....	62,550	Laval.....	115,908	Durham.....	73,705
Cape Breton-The Syde-		Maisonneuve-Rosemont	74,499	Ontario.....	87,842
neys.....	68,135	Mercier.....	118,807	Oshawa-Whitby.....	111,361
Central Nova.....	62,726	Montréal-Bourassa.....	124,746	Ottawa-Carleton.....	130,006
Cumberland-Colchester		Mount Royal.....	90,844	Ottawa Centre.....	70,584
North.....	65,899	Notre-Dame-de-Grâce.....	77,052	Ottawa East.....	71,277
Dartmouth-Halifax East		Outremont.....	75,621	Ottawa West.....	98,956
Halifax.....	98,399	Papineau.....	73,439	Oxford.....	80,336
Halifax-East Hants.....	64,523	Saint-Denis.....	77,362	Parry Sound-Muskoka.....	62,162
South Shore.....	100,637	Saint-Henri.....	57,162	Peel-Dufferin-Simcoe.....	119,885
South Western Nova.....	65,420	Saint-Jacques.....	53,179	Peel South.....	172,352
	62,177	Sainte-Marie.....	58,381	Perth-Wilmot.....	72,996
		Saint-Michel.....	138,109	Peterborough.....	85,064
		Verdun.....	74,718	Port Arthur.....	57,456
		Westmount.....	83,645	Prince Edward—	
<b>New Brunswick</b> .....	<b>634,557</b>	Pontiac.....	95,956	Hastings.....	74,856
Carleton-Charlotte.....	59,244	Portneuf.....	116,079	Renfrew North.....	61,707
Fundy-Royal.....	70,316	Québec-Est.....	81,782	St. Catharines.....	101,418
Gloucester.....	63,556	Richelieu.....	77,197	Sarnia-Lambton.....	83,631
Madawaska-Victoria.....	54,772	Richmond.....	62,741	Sault Ste. Marie.....	81,002
Moncton.....	80,188	Rimouski.....	69,276	Simcoe North.....	93,655
Northumberland—		Roberval.....	53,671	Stormont-Dundas.....	72,052
Miramichi.....	54,094	Saint-Hyacinthe.....	82,540	Sudbury.....	94,624
Restigouche.....	52,485	Saint-Jean.....	83,274	Thunder Bay.....	53,214
Saint John-Lancaster.....	68,460	Saint-Maurice.....	71,147	Timiskaming.....	49,870
Westmorland-Kent.....	51,856	Shefford.....	79,083	Timmins.....	53,616
York-Sunbury.....	79,586	Sherbrooke.....	97,550		
		Témiscamingue.....	54,545	Toronto Area—	
<b>Quebec</b> .....	<b>6,027,764</b>	Témiscouata.....	59,816	Broadview.....	78,601
Abitibi.....	58,427	Terrebonne.....	122,332	Davenport.....	84,780
Argenteuil-Deux-		Trois-Rivières.....	95,389	Don Valley.....	104,606
Montagnes.....	80,574	Vaudreuil.....	112,103	Eglinton.....	78,314
Beauce.....	69,984	Villeneuve.....	58,859	Etobicoke.....	135,971
Beauharnois-Salaberry.....	73,396			Greenwood.....	80,797
Bellechasse.....	64,675	<b>Ontario</b> .....	<b>7,703,106</b>	High Park.....	86,050
Berthier.....	62,521	Algoma.....	52,746	Parkdale.....	82,207
Bonaventure-Îles-de-la-		Brant.....	97,549	Rosedale.....	81,265
Madeleine.....	55,004	Bruce.....	63,308	St. Paul's.....	72,174
Brome-Missisquoi.....	76,787	Cochrane.....	54,786	Scarborough East.....	149,514
Chambly.....	120,337	Elgin.....	66,608	Scarborough West.....	87,383
Champlain.....	62,068	Essex.....	94,846	Spadina.....	75,487
Charlevoix.....	59,686	Fort William.....	60,207	Toronto-Lakeshore.....	77,227
Chicoutimi.....	82,658	Frontenac-Lennox and		Trinity.....	81,073
Compton.....	62,197	Addington.....	61,668	York Centre.....	160,051
Drummond.....	75,533	Glenarry-Prescott-		York East.....	102,910
Frontenac.....	67,991	Russell.....	62,599	York North.....	125,296
Gaspé.....	56,280	Grenville-Carleton.....	119,408	York-Scarborough.....	193,156
Gatineau.....	81,320	Grey-Simcoe.....	67,997	York South.....	85,768
Hull.....	93,804	Halton.....	105,801	York West.....	139,650
Joliette.....	83,417	Halton-Wentworth.....	124,390	Victoria-Haliburton.....	60,996
Kamouraska.....	63,228	Hamilton East.....	74,709	Waterloo.....	120,719
				Welland.....	82,860



## 5.—Population by Federal Electoral District, 1971—concluded

Electoral District	Number	Electoral District	Number	Electoral District	Number
<b>Ontario—concluded</b>		Regina East.....	89,048	Burnaby-Seymour.....	103,410
Wellington.....	75,989	Regina-Lake Centre.....	97,537	Capilano.....	103,918
Wellington-Grey-		Saskatoon-Biggar.....	87,303	Coast Chilcotin.....	67,858
Dufferin-Waterloo.....	73,846	Saskatoon-Humboldt.....	102,185	Comox-Alberni.....	89,644
Windsor-Walkerville.....	87,514	Swift Current-Maple		Esquimalt-Saanich.....	105,411
Windsor West.....	90,466	Creek.....	60,972	Fraser Valley East.....	85,401
York-Simcoe.....	99,624	Yorkton-Melville.....	68,896	Fraser Valley West.....	117,467
				Kamloops-Cariboo.....	104,739
<b>Manitoba</b>	<b>988,247</b>	<b>Alberta</b>	<b>1,627,874</b>	Kootenay West.....	67,513
Brandon-Souris.....	62,547	Athabasca.....	67,746	Nanaimo-Cowichan-	
Churchill.....	77,507	Battle River.....	59,545	The Islands.....	97,106
Dauphin.....	54,110	Calgary Centre.....	87,346	New Westminster.....	106,331
Lisgar.....	56,974	Calgary North.....	118,118	Okanagan Boundary.....	101,304
Marquette.....	54,070	Calgary South.....	133,796	Okanagan-Kootenay.....	92,717
Portage.....	51,951	Crowfoot.....	55,672	Prince George-Peace	
Provencher.....	62,089	Edmonton Centre.....	94,410	River.....	108,022
St. Boniface.....	103,943	Edmonton East.....	105,904	Skeena.....	87,917
Selkirk.....	98,106	Edmonton-Strathcona.....	109,725	Surrey-White Rock.....	104,072
Winnipeg North.....	83,845	Edmonton West.....	126,765	Vancouver Centre.....	91,473
Winnipeg North Centre.....	73,559	Lethbridge.....	75,735	Vancouver East.....	85,071
Winnipeg South.....	94,743	Medicine Hat.....	62,697	Vancouver Kingsway.....	85,005
Winnipeg South Centre.....	114,803	Palliser.....	100,115	Vancouver Quadra.....	79,949
		Peace River.....	62,413	Vancouver South.....	88,701
<b>Saskatchewan</b>	<b>926,242</b>	Pembina.....	94,678	Victoria.....	88,211
Assiniboia.....	57,131	Red Deer.....	78,792		
Battleford-Kindersley.....	66,855	Rocky Mountain.....	63,834	<b>Yukon Territory</b> .....	<b>18,388</b>
Mackenzie.....	47,919	Vegreville.....	58,986		
Meadow Lake.....	50,391	Wetaskiwin.....	71,537	<b>Northwest Territories..</b>	<b>34,807</b>
Moose Jaw.....	61,810				
Prince Albert.....	72,195	<b>British Columbia</b>	<b>2,184,621</b>	<b>Total</b> .....	<b>21,568,311</b>
Qu'Appelle-Moose		Burnaby-Richmond-			
Mountain.....	64,000	Delta.....	123,381		

## 6.—Incorporated Cities, Towns and Villages having Populations of 1,000 or Over, by Province, Census 1971

Province and Incorporated Centre	Population	Province and Incorporated Centre	Population	Province and Incorporated Centre	Population
No.		No.		No.	
<b>Newfoundland—</b>		Holyrood, t.....	1,282	<b>Prince Edward Island—</b>	
Badger, t.....	1,187	Jerseyside, t.....	1,061	Charlottetown, c.....	19,133
Baie Verte, t.....	2,397	Lawn, t.....	1,000	Kensington, t.....	1,086
Bay Roberts, t.....	3,702	Lewisporte, t.....	3,175	Montague, t.....	1,608
Bishop's Falls, t.....	4,133	Marystown, t.....	4,960	Parkdale, v.....	2,313
Bonavista, t.....	4,215	Mount Pearl, t.....	7,211	St. Eleanors, v.....	1,621
Botwood, t.....	4,115	Norris Arm, t.....	1,191	Sherwood, v.....	3,807
Burgeo, t.....	2,226	Placentia, t.....	2,211	Souris, t.....	1,393
Burin, t.....	2,586	Pouch Cove, t.....	1,483	Summerside, t.....	9,439
Carbonear, t.....	4,732	Ramea, t.....	1,208	Tignish, v.....	1,060
Catalina, t.....	1,131	Robert's Arm, t.....	1,044		
Channel-Port aux		Roddickton, t.....	1,239	<b>Nova Scotia—</b>	
Basques, t.....	5,942	St. Alban's, t.....	1,941	Amherst, t.....	9,966
Clareville, t.....	2,193	St. Anthony, t.....	2,593	Antigonish, t.....	5,489
Corner Brook, c.....	26,309	St. George's, t.....	2,082	Berwick, t.....	1,412
Deer Lake, t.....	4,421	St. John's, c.....	88,102	Bridgetown, t.....	1,039
Dunville, t.....	1,742	St. Lawrence, t.....	2,173	Bridgewater, t.....	5,231
Englee, t.....	1,050	Spaniard's Bay, t.....	3,224	Canso, t.....	1,209
Fogo, t.....	1,155	Springdale, t.....	7,770	Clark's Harbour, t.....	1,082
Fortune, t.....	2,164	Stephenville, t.....	2,129	Dartmouth, c.....	64,770
Freshwater, t.....	1,562	Stephenville Crossing, t.....	1,443	Digby, t.....	2,363
Gander, t.....	7,748	Trepassey, t.....	1,437	Dominion, t.....	2,879
Glovertown, t.....	1,915	Twillingate, t.....	1,819	Glace Bay, t.....	22,440
Grand Bank, t.....	3,476	Upper Island Cove, t.....	5,421	Halifax, c.....	122,035
Grand Falls, t.....	7,677	Wabana, t.....	1,142	Hantsport, t.....	1,447
Happy Valley, t.....	4,937	Wesleyville, t.....	1,235	Kentville, t.....	5,198
Harbour Breton, t.....	2,196	Whitbourne, t.....	6,644	Liverpool, t.....	3,654
Harbour Grace, t.....	2,771	Windsor, t.....		Lockeport, t.....	1,208
Hare Bay, t.....	1,485				

**6. —Incorporated Cities, Towns and Villages having Populations of 1,000 or Over,  
by Province, Census 1971—continued**

Province and Incorporated Centre	Popula- tion	Province and Incorporated Centre	Popula- tion	Province and Incorporated Centre	Popula- tion
No.	No.	No.	No.	No.	No.
<b>Nova Scotia—concluded</b>					
Louisbourg, t.	1,582	Renforth, v.	1,606	Causapscaal, t.	2,965
Lunenburg, t.	3,215	Richibucto, v.	1,850	Chambly, c.	11,469
Mahone Bay, t.	1,333	Riverview Heights, v.	6,525	Chambord, v.	1,106
Middleton, t.	1,870	Rivière Verte, v.	1,657	Chandler, t.	3,843
Mulgrave, t.	1,196	Rogersville, v.	1,077	Chapais, t.	2,914
New Glasgow, t.	10,849	Rothsay, t.	1,038	Charlemagne, t.	4,111
New Waterford, t.	9,579	St. Andrews, t.	1,812	Charlesbourg, c.	33,443
North Sydney, t.	8,604	Ste. Anne de Madawaska, v.	1,253	Charny, t.	5,175
Oxford, t.	1,473	St. Anselme, v.	1,150	Châteauguay, t.	15,797
Parrsboro, t.	1,807	St. Basile, v.	3,085	Châteauguay-Centre, t.	17,942
Pietou, t.	4,250	St. Jacques, v.	1,072	Château-Richer, t.	3,111
Port Hawkesbury, t.	3,372	Saint John, c.	89,039	Chibougamau, t.	9,701
Shelburne, t.	2,689	St. Leonard, t.	1,478	Chicoutimi, c.	33,893
Springhill, t.	5,262	St. Quentin, v.	2,093	Chicoutimi-Nord, c.	14,086
Stellarton, t.	5,357	St. Stephen, t.	3,409	Chute-aux-Outardes, v.	1,930
Stewiacke, t.	1,040	Sackville, t.	3,180	Clermont, t.	3,386
Sydney, c.	33,230	Salisbury, v.	1,070	Coaticook, t.	6,569
Sydney Mines, t.	8,991	Shediac, t.	2,203	Contrecoeur, v.	2,694
Trenton, t.	3,331	Shippegan, t.	2,043	Cookshire, t.	1,484
Truro, t.	13,047	Sussex, t.	3,942	Côte-St-Luc, c.	24,375
Westville, t.	3,898	Tracadie, t.	2,222	Courville, t.	6,222
Windsor, t.	3,775	Woodstock, t.	4,846	Cowansville, t.	11,920
Wolfville, t.	2,861			Crabtree, v.	1,706
Yarmouth, t.	8,516			Danville, t.	2,566
		<b>Quebec—</b>		Dégelis, t.	3,046
		Acton Vale, t.	4,564	Delson, t.	2,941
		Alma, c.	22,622	Desbiens, t.	1,813
		Amos, t.	6,984	Deschailons-sur- St-Laurent, v.	1,176
		Amqui, t.	3,797	Deschênes, v.	1,806
		Ancienne-Lorette, t.	8,304	Deux-Montagnes, c.	8,631
		Anjou, t.	33,886	Disraeli, t.	3,384
		Arthabaska, t.	4,479	Dolbeau, t.	7,633
		Arvida, c.	18,448	Dollard-des-Ormeaux, t.	25,217
		Asbestos, t.	9,749	Donnacona, t.	5,940
		Aylmer, t.	7,198	Dorion, c.	6,209
		Bagotville, t.	6,041	Dorval, c.	20,469
		Baie-Comeau, t.	12,109	Douville, t.	3,267
		Baie-d'Urff, t.	3,881	Drummondville, c.	31,813
		Baie-St-Paul, t.	4,163	Drummondville-Sud, t.	8,989
		Barraute, v.	1,288	East Angus, t.	4,715
		Beaconsfield, c.	19,389	East Broughton Station, v.	1,127
		Beauceville, t.	2,098	Farnham, c.	6,496
		Beauceville-Est, t.	2,192	Ferme-Neuve, v.	1,990
		Beauharnois, c.	8,121	Forestville, t.	1,606
		Beauport, c.	11,681	Fort Coulonge, v.	1,784
		Beaupré, t.	2,862	Francœur, v.	1,186
		Béancourt, t.	8,182	Gagnon, t.	3,787
		Bedford, t.	2,786	Catineau, t.	17,211
		Beebe Plain, v.	1,236	Caspé, c.	22,321
		Bélair, t.	4,505	Catineau, t.	13,135
		Beloeil, t.	12,274	Giffard, c.	1,049
		Bermierville, t.	2,415	Gracefield, v.	34,385
		Bic, v.	4,080	Grand'Mère, c.	17,137
		Black Lake, t.	1,157	Greenfield Park, t.	15,348
		Blainville, t.	9,630	Grenville, v.	1,495
		Bois-des-Filion, v.	4,061	Hamstead, t.	7,033
		Boucherville, t.	19,957	Hauterive, t.	13,181
		Bromont, t.	1,089	Hébertville-Station, v.	1,163
		Bromptonville, t.	2,771	Hudson, t.	4,345
		Brossard, t.	23,452	Hull, c.	63,580
		Brownsburg, v.	3,481	Huntingdon, t.	3,087
		Buckingham, t.	7,304	Iberville, t.	9,331
		Cabano, t.	3,063	Île-Perrot, t.	4,021
		Cadillac, t.	1,102	Joliette, c.	20,127
		Campbell's Bay, v.	1,186	Jonquières, c.	28,430
		Candiac, t.	5,185	Kénogami, c.	10,970
		Cap-aux-Meules, v.	1,099	Kirkland, t.	2,917
		Cap-Chat, t.	3,868	Labelle, v.	1,492
		Cap-de-la-Madeleine, c.	31,463	Lac-au-Saumon, v.	1,314
		Carignan, t.	3,340	Lac-Brome, t.	4,063
<b>New Brunswick—</b>					
Atholville, v.	2,108				
Barker's Point, v.	1,882				
Bathurst, c.	16,674				
Beresford, v.	2,325				
Bertrand, v.	1,094				
Buctouche, v.	1,964				
Campbellton, c.	10,335				
Cap-Pelé, t.	2,081				
Caraget, t.	3,441				
Charlo, v.	1,621				
Chatham, t.	7,833				
Chipman, v.	1,977				
Dalhousie, t.	6,255				
Dieppe, t.	4,277				
Dorchester, v.	1,199				
Edmundston, c.	12,365				
Eel River Crossing, v.	1,075				
Fairville, v.	2,050				
Fredericton, c.	24,254				
Grand Falls, t.	4,516				
Gunningsville, v.	1,669				
Hampton, v.	1,748				
Hartland, t.	1,009				
Kedgwick, v.	1,065				
Lewisville, v.	3,710				
Lower Caraget, v.	1,685				
Marysville, t.	3,872				
McAdam, v.	2,224				
Milltown, t.	1,895				
Minto, v.	3,880				
Moncton, c.	47,891				
Nackawic, v.	1,324				
Nashwaakasis, v.	7,353				
Neguaq, v.	1,498				
Nelson Miramichi, v.	1,580				
Newcastle, t.	6,460				
Norton, v.	1,149				
Oromocto, t.	11,427				
Perth-Andover, v.	2,108				
Petit Rocher, v.	1,624				
Petitcodiac, v.	1,569				
Plaster Rock, v.	1,331				
Quispamsis, v.	2,215				

**6. Incorporated Cities, Towns and Villages having Populations of 1,000 or Over,  
by Province, Census 1971—continued**

Province and Incorporated Centre	Popula- tion	Province and Incorporated Centre	Popula- tion	Province and Incorporated Centre	Popula- tion
No.	No.	No.	No.	No.	No.
<b>Quebec—continued</b>					
Lac-Étchemin, t.	2,789	Omerville, v.	1,102	St-Gabriel, t.	3,383
Lachline, c.	44,423	Ormstown, v.	1,517	St-Gédéon, v.	1,174
Lachute, c.	11,813	Orsainville, t.	12,520	St-Geneviève, t.	2,847
Lac-Mégantic, t.	6,770	Otterburn Park, t.	3,512	St-Georges, t.	7,554
Lacolle, v.	1,254	Outremont, c.	28,552	St-Georges, v.	2,061
Laféche, c.	15,113	Papineauville, v.	1,384	St-Georges-de-	
Lafontaine, v.	2,980	Percé, c.	5,617	Cacouna, v.	1,001
La Guadeloupe, v.	1,934	Pierrefonds, c.	33,010	St-Georges-Quest, t.	6,000
La Malbaie, t.	4,036	Pierreville, v.	1,455	St-Germain-de-	
L'Annonciation, v.	2,162	Pincourt, t.	5,899	Grantham, v.	1,104
La Pérade, v.	1,123	Plessisville, t.	7,204	St-Henri, v.	1,160
La Pocatière, t.	4,256	Pointe-au-Pic, v.	1,231	St-Honoré, v.	1,055
La Prairie, t.	8,309	Pointe-aux-Trembles, c.	35,567	St-Hubert, t.	21,741
La Providence, t.	4,709	Pointe-Calumet, v.	2,214	St-Hyacinthe, c.	24,562
LaSalle, c.	72,912	Pointe-Claire, c.	27,303	St-Jacques, v.	1,975
La Sarre, t.	5,185	Pointe-Gatineau, t.	15,640	St-Jean, c.	32,863
L'Assomption, t.	4,915	Port-Rouge, v.	3,272	St-Jean-Chrysostome, t.	1,905
La Tuque, t.	13,099	Port-Alfred, t.	9,228	St-Jean-de-Boischatel, v.	1,685
Laurentides, t.	1,746	Port Cartier, t.	3,730	St-Jérôme, c.	26,524
Lauzon, c.	12,809	Portneuf, t.	1,347	St-Jérôme, v.	1,910
Laval, c.	228,010	Price, v.	2,740	St-Joseph, t.	1,945
Lavaltrie, v.	1,261	Princeville, t.	3,829	St-Joseph-de-Beauce, t.	2,893
Lebel-sur-Quévillon, t.	2,936	Québec, c.	186,088	St-Joseph-de-la-Rivière-	
LeMoyné, t.	8,194	Rawdon, v.	2,740	Bleue, v.	1,429
Leppoxville, t.	3,859	Repentigny, t.	19,520	St-Joseph-de-Sorel, t.	3,290
L'Épiphanie, t.	2,752	Richelieu, t.	1,777	St-Jovite, v.	3,132
Léry, t.	2,247	Richmond, t.	4,317	St-Lambert, c.	18,616
Lévis, c.	16,597	Rigaud, t.	2,138	St-Laurent, c.	62,955
Linière, v.	1,220	Rimouski, c.	26,887	St-Léonard, c.	52,040
L'Islet, t.	1,195	Rimouski-Est, v.	2,069	St-Luc, t.	4,850
L'Isle-Verte, v.	1,360	Rivière-du-Loup, c.	12,760	St-Madeleine, v.	1,110
Longueuil, c.	97,590	Rivière-du-Moulin, t.	4,393	St-Marc-des-Carrières, v.	2,650
Loretteville, c.	11,644	Robertsonville, v.	1,294	St-Marie, t.	4,307
Lorrain, t.	3,145	Roberval, c.	8,330	St-Nicolas, t.	1,975
Louiseville, t.	4,042	Rock Island, t.	1,341	St-Pacôme, v.	1,180
Luceville, v.	1,411	Rosemère, t.	6,710	St-Pamphile, t.	3,542
Macamic, t.	1,705	Roxboro, t.	7,633	St-Pascal, t.	2,513
Magog, c.	13,281	Roxton Falls, v.	1,139	St-Pie, v.	1,709
Malartic, t.	5,347	Rouyn, c.	17,821	St-Pierre, t.	6,801
Maniwaki, t.	6,689	St-Agapitville, v.	1,493	St-Prime, v.	2,350
Maple Grove, t.	1,708	St-Agathe-des-Monts, t.	5,532	St-Raphaël, v.	1,216
Mariéville, t.	4,563	St-Ambroise, v.	1,629	St-Raymond, t.	4,036
Mascouche, t.	8,812	St-André-Avellin, v.	1,088	St-Rédempteur, v.	1,652
Masson, t.	2,336	St-André-Est, v.	1,201	St-Rémi, t.	2,282
Matagami, t.	2,411	St-Anne-de-Beaupré, v.	1,797	St-Romuald-	
Matane, t.	11,841	St-Anne-de-Bellevue, t.	4,976	d'Étchemin, c.	8,394
McMasterville, v.	2,518	St-Anne-des-Monts, t.	5,546	St-Rosalie, v.	2,210
Melocheville, v.	1,601	St-Anselme, v.	1,400	St-Sauveur-des-Monts, v.	1,846
Mercier, t.	4,011	St-Antoine, t.	5,831	St-Scholastique, c.	14,787
Mistassini, t.	3,601	St-Basile-le-Grand, t.	4,402	St-Siméon, v.	1,186
Montbello, v.	1,285	St-Basile-Sud, v.	1,731	St-Thécle, v.	1,725
Mont-Joli, t.	6,698	St-Boniface-de-		St-Thérèse, c.	17,175
Mont-Laurier, t.	8,240	Shawinigan, v.	2,581	St-Thérèse-Ouest, t.	7,278
Montusigny, c.	12,432	St-Bruno, v.	1,276	St-Timothée, v.	1,613
Montmorency, t.	4,949	St-Bruno-de-Montarville,		St-Tite, t.	3,130
Montréal, c.	1,214,352	t.	15,780	St-Victor, v.	1,017
Montréal-Est, t.	5,076	St-Casimir, v.	1,239	St-Zacharie, v.	1,390
Montréal-Nord, c.	89,139	St-Césaire, t.	2,279	St-Zotique, v.	1,243
Montréal-Ouest, t.	6,368	St-Chrysostome, v.	1,077	Sacré-Cœur-de-Jésus, v.	1,252
Mont-Royal, t.	21,561	St-Cœur-de-Marie, v.	1,218	Sayabec, v.	1,789
Mont-St-Hilaire, t.	5,758	St-Croix, v.	1,545	Schefferville, t.	3,271
Murdochville, t.	2,891	St-Cyrille, v.	1,125	Senneterre, t.	4,303
Napierville, v.	1,987	St-Damase, v.	1,106	Senneville, v.	1,412
New Richmond, t.	3,957	St-David-de-		Sept Îles, c.	24,320
Nicolet, t.	4,714	L'Auberivière, t.	3,118	Shawinigan, c.	27,792
Noranda, c.	10,741	St-Dominique, v.	1,722	Shawinigan-Sud, t.	11,470
Normandin, v.	1,823	St-Émile, t.	2,645	Shawville, v.	1,745
N.-D.-des-Laurentides, t.	5,080	St-Eustache, t.	9,479	Sherbrooke, c.	80,711
N.-D.-d'Hébertville, v.	1,506	St-Félicien, t.	4,952	Sillery, c.	13,932
N.-D.-du-Bon-Conseil, v.	1,048	St-Félix-de-Valois, v.	1,455	Sorel, c.	19,347
N.-D.-du-Lac, t.	2,107	St-Foy, c.	68,385	Stanstead Plain, v.	1,192
		St-François-du-Lac, v.	1,001	Sutton, t.	1,684

**6. -Incorporated Cities, Towns and Villages having Populations of 1,000 or Over,  
by Province, Census 1971—continued**

Province and Incorporated Centre	Population	Province and Incorporated Centre	Population	Province and Incorporated Centre	Population
No.		No.		No.	
<b>Quebec—continued</b>					
Tadoussac, v.	1,010	Cannington, v.	1,083	Kingsville, t.	4,076
Temiscaming, t.	2,428	Capreol, t.	3,470	Kitchener, c.	111,804
Templeton, v.	3,684	Cardinal, v.	1,865	Lakefield, v.	2,245
Terrebonne, t.	9,212	Carleton Place, t.	5,020	Leamington, t.	10,435
Thetford Mines, c.	22,003	Casselman, v.	1,337	Levac, t.	2,948
Thurso, t.	3,219	Cayuga, v.	1,084	Lincoln, t.	14,244
Tracy, t.	11,842	Chalk River, v.	1,094	Lindsay, v.	12,744
Tring-Jonction, v.	1,283	Chatham, c.	35,317	Listowel, t.	4,677
Trois Pistoles, t.	4,678	Chesley, t.	1,693	Little Current, t.	1,565
Trois-Rivières, c.	55,869	Chesterville, v.	1,252	Lively, t.	3,000
Trois-Rivières-Ouest, t.	8,057	Clinton, t.	3,154	London, c.	223,222
Valcourt, v.	2,411	Cobalt, t.	2,197	L'Orignal, v.	1,405
Val-David, v.	1,627	Cobourg, t.	11,282	Lucan, v.	1,178
Val-d'Or, t.	17,421	Cochrane, t.	4,965	Lucknow, v.	1,047
Valleé-Jonction, v.	1,295	Colborne, v.	1,588	Madoc, v.	1,353
Valleyfield (Salaberry-de-), c.	30,173	Collingwood, t.	9,775	Markdale, v.	1,236
Val-St-Michel, t.	2,050	Coniston, t.	2,907	Markham, t.	36,684
Vanier, t.	9,717	Copper Cliff, t.	4,089	Marmora, v.	1,350
Varennes, v.	2,382	Cornwall, c.	47,116	Massey, t.	1,278
Vaudreuil, t.	3,843	Deep River, t.	5,671	Mattawa, t.	2,881
Verchères, v.	1,840	Delhi, t.	3,894	Meaford, t.	4,045
Verdun, c.	74,718	Deseronto, t.	1,863	Midland, t.	10,992
Victoriaville, t.	22,047	Dresden, t.	2,369	Milton, t.	7,018
Ville-Marie, t.	1,995	Dryden, t.	6,939	Milverton, v.	1,193
Villeneuve, t.	4,062	Dundalk, v.	1,022	Mississauga, t.	156,070
Warwick, t.	2,847	Dundas, t.	17,208	Mitchell, t.	2,545
Waterloo, t.	4,936	Dunnville, t.	5,576	Morrisburg, v.	2,055
Waterville, t.	1,476	Durham, t.	2,448	Mount Forest, t.	3,307
Weedon-Centre, v.	1,429	Eganville, v.	1,395	Napanee, t.	4,638
Westmount, c.	23,606	Elmira, t.	4,730	Newcastle, v.	1,942
Windsor, t.	6,023	Elmvale, v.	1,103	New Hamburg, t.	3,008
Yamachiche, v.	1,147	Elora, v.	1,904	New Liskeard, t.	5,488
		Englehart, t.	1,721	Newmarket, t.	18,941
		Erin, v.	1,446	Niagara Falls, c.	67,163
		Espanola, t.	6,045	Niagara-on-the-Lake, t.	12,552
		Essex, t.	4,002	North Bay, c.	49,187
		Exeter, t.	3,354	Norwich, v.	1,806
		Exeter, t.	3,354	Norwood, v.	1,183
		Exeter, t.	3,354	Oakville, t.	61,483
		Exeter, t.	3,354	Orangeville, t.	8,074
		Exeter, t.	3,354	Orillia, c.	24,040
		Exeter, t.	3,354	Oshawa, c.	91,587
		Exeter, t.	3,354	Ottawa, c.	302,341
		Exeter, t.	3,354	Owen Sound, c.	18,469
		Exeter, t.	3,354	Palmerston, t.	1,855
		Exeter, t.	3,354	Paris, t.	6,483
		Exeter, t.	3,354	Parkhill, t.	1,116
		Exeter, t.	3,354	Parry Sound, t.	5,842
		Exeter, t.	3,354	Pelham, t.	9,997
		Exeter, t.	3,354	Pembroke, c.	16,544
		Exeter, t.	3,354	Penetanguishene, t.	5,497
		Exeter, t.	3,354	Perth, t.	5,537
		Exeter, t.	3,354	Petaawawa, v.	5,784
		Exeter, t.	3,354	Peterborough, c.	58,111
		Exeter, t.	3,354	Petrolia, t.	4,044
		Exeter, t.	3,354	Pickering, v.	2,537
		Exeter, t.	3,354	Pictou, t.	4,775
		Exeter, t.	3,354	Point Edward, v.	2,773
		Exeter, t.	3,354	Port Colborne, c.	21,420
		Exeter, t.	3,354	Port Credit, t.	9,242
		Exeter, t.	3,354	Port Dover, t.	3,407
		Exeter, t.	3,354	Port Elgin, t.	2,855
		Exeter, t.	3,354	Port Erie, t.	23,113
		Exeter, t.	3,354	Port Hope, t.	8,872
		Exeter, t.	3,354	Port McNicoll, v.	1,450
		Exeter, t.	3,354	Port Perry, v.	2,271
		Exeter, t.	3,354	Port Stanley, v.	1,725
		Exeter, t.	3,354	Powassan, t.	1,163
		Exeter, t.	3,354	Prestcott, t.	5,165
		Exeter, t.	3,354	Preston, t.	16,723
		Exeter, t.	3,354	Rainy River, t.	1,196
		Exeter, t.	3,354	Renfrew, t.	9,177
		Exeter, t.	3,354		
		Exeter, t.	3,354		
		Exeter, t.	3,354		
		Exeter, t.	3,354		
		Exeter, t.	3,354		
		Exeter, t.	3,354		
		Exeter, t.	3,354		
		Exeter, t.	3,354		
		Exeter, t.	3,354		
		Exeter, t.	3,354		
		Exeter, t.	3,354		
		Exeter, t.	3,354		
		Exeter, t.	3,354		
		Exeter, t.	3,354		
		Exeter, t.	3,354		
		Exeter, t.	3,354		
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**6.—Incorporated Cities, Towns and Villages having Populations of 1,000 or Over,  
by Province, Census 1971—continued**

Province and Incorporated Centre	Popula- tion	Province and Incorporated Centre	Popula- tion	Province and Incorporated Centre	Popula- tion
No.			No.		No.
<b>Ontario—concluded</b>					
Richmond, v.	2,122	Boissevain, t.	1,506	Melville, c.	5,375
Richmond Hill, t.	32,384	Brandon, c.	31,150	Moose Jaw, c.	31,854
Ridgetown, t.	2,836	Carberry, t.	1,305	Moosomin, t.	2,407
Rockcliffe Park, v.	2,138	Carman, t.	2,030	Nipawin, t.	4,057
Rockland, t.	3,649	Dauphin, t.	8,891	North Battleford, c.	12,698
Rodney, v.	1,016	East Kildonan, c.	30,152	Outlook, t.	1,767
St. Catharines, c.	109,722	Flin Flon, c. (Man. and Sask.)	9,344	Oxbow, t.	1,380
St. Clair Beach, v.	1,987	Gimli, t.	2,041	Preeceville, t.	1,118
St. Mary's, t.	4,650	Killarney, t.	2,074	Prince Albert, c.	28,464
St. Thomas, c.	25,545	Melita, t.	1,132	Radville, t.	1,024
Sarnia, c.	57,644	Minnedosa, t.	2,621	Regina, c.	139,469
Sault Ste. Marie, c.	80,332	Morden, t.	3,266	Rosetown, t.	2,614
Seaforth, t.	2,134	Morris, t.	1,399	Rosthern, t.	1,431
Shelburne, v.	1,790	Neepawa, t.	3,215	Saskatoon, c.	126,449
Simcoe, t.	10,793	Portage la Prairie, c.	12,950	Shaunavon, t.	2,244
Sioux Lookout, t.	2,530	Rivers, t.	1,175	Shellbrook, t.	1,048
Smiths Falls, t.	9,585	Roblin, t.	1,753	Swift Current, c.	15,415
Smooth Rock Falls, t.	1,239	Russell, t.	1,526	Tisdale, t.	2,798
Southampton, t.	2,036	Ste. Anne, v.	1,062	Unity, t.	2,294
South River, v.	1,052	St. Boniface, c.	46,714	Wadena, t.	1,382
Stayner, t.	1,937	St. James-Assiniboia, c.	71,431	Wakaw, t.	1,009
Stirling, v.	1,500	St. Vital, c.	32,963	Watrous, t.	1,541
Stittsville, v.	1,994	Selkirk, t.	9,331	Weyburn, c.	8,815
Stoney Creek, t.	8,380	Souris, t.	1,674	Whitehead, t.	1,098
Stratford, c.	24,508	Steinbach, t.	5,197	Wilkie, t.	1,642
Strathroy, t.	6,592	Stonewall, t.	1,583	Wynyard, t.	1,932
Streetsville, t.	6,840	Swan River, t.	3,522	Yorkton, c.	13,430
Sturgeon Falls, t.	6,662	The Pas, t.	6,062	<b>Alberta</b>	
Sudbury, c.	90,535	Thompson, c.	19,001	Airdrie, v.	1,089
Tavistock, v.	1,490	Transcona, c.	22,490	Athabasca, t.	1,765
Tecumseh, t.	5,165	Tuxedo, t.	3,255	Barrhead, t.	2,803
Thamesville, v.	1,028	Virden, t.	2,823	Beaverlodge, t.	1,157
Thessalon, t.	1,879	West Kildonan, c.	23,959	Bellevue, v.	1,242
Thornbury, t.	1,220	Winkler, t.	2,983	Blairmore, t.	2,037
Thorold, t.	15,065	Winnipeg, c.	246,246	Bonnyville, t.	2,587
Thunder Bay, c.	108,411	<b>Saskatchewan—</b>		Bow Island, t.	1,159
Tilbury, t.	3,580	Assiniboia, t.	2,675	Brooks, t.	3,986
Tillsonburg, t.	6,608	Battleford, t.	1,803	Calgary, c.	403,319
Timmins, t.	28,542	Biggar, t.	2,607	Camrose, c.	8,673
Toronto, c.	712,786	Canora, t.	2,603	Canmore, t.	1,538
Tottenham, v.	1,616	Carlyle, t.	1,101	Cardston, t.	2,685
Trenton, t.	14,589	Carnduff, t.	1,075	Castor, t.	1,166
Tweed, v.	1,738	Creighton, t.	1,857	Claresholm, t.	2,935
Uxbridge, t.	3,077	Davidson, t.	1,043	Coaldale, t.	2,798
Vanier, c.	22,477	Esterhazy, t.	2,896	Cochrane, t.	1,046
Vankleek Hill, t.	1,691	Estevan, c.	9,150	Cold Lake, t.	1,309
Vaughan, t.	15,873	Eston, t.	1,418	Coleman, t.	1,554
Victoria Harbour, v.	1,243	Flin Flon, c.	1,418	Devon, t.	1,468
Walkerton, t.	4,479	Foam Lake, t.	1,331	Didsbury, t.	1,821
Wallaceburg, t.	10,550	Fort Qu'Appelle, t.	1,606	Drayton Valley, t.	3,900
Wasaga Beach, v.	1,923	Gravelbourg, t.	1,428	Drumheller, c.	5,446
Waterdown, v.	2,146	Grenfell, t.	1,350	Edmonton, c.	498,152
Waterford, t.	2,403	Gull Lake, t.	1,156	Edson, t.	3,818
Waterloo, c.	36,677	Herbert, t.	1,024	Fairview, t.	2,109
Watford, v.	1,400	Hudson Bay, t.	1,971	Fort Macleod, t.	2,715
Welland, c.	44,397	Humboldt, t.	3,881	Fort McMurray, t.	6,847
West Lorne, v.	1,094	Indian Head, t.	1,810	Fort Saskatchewan, t.	5,726
Wheatley, v.	1,657	Kamsack, t.	2,783	Fox Creek, t.	1,281
Whitby, t.	25,324	Kelvington, t.	1,053	Grand Centre, t.	2,088
Whitchurch-Stouffville, t.	11,262	Kerrobert, t.	1,180	Grande Cache, t.	2,525
Warton, t.	2,222	Kindersley, t.	3,451	Grande Prairie, c.	13,079
Winchester, v.	1,575	Langenburg, t.	1,236	Grimshaw, t.	1,714
Windsor, c.	203,300	Langigan, t.	1,430	Hanna, t.	2,545
Wingham, t.	2,913	Leader, t.	1,105	High Level, t.	1,614
Woodstock, c.	26,173	Lloydminster, c. (Sask. and Alta.)	8,691	High Prairie, t.	2,354
Wyoming, v.	1,279	Maple Creek, t.	2,268	High River, t.	2,676
<b>Manitoba—</b>		Meadow Lake, t.	3,435	Hinton, t.	4,911
Altona, t.	2,122	Melfort, t.	4,725	Innisfail, t.	2,474
Beauséjour, t.	2,236			Lac la Biche, t.	1,791
				Lacombe, t.	3,436

<sup>1</sup> See Manitoba.

# 6. Incorporated Cities, Towns and Villages having Populations of 1,000 or Over, by Province, Census 1971—concluded

Province and Incorporated Centre	Popula- tion	Province and Incorporated Centre	Popula- tion	Province and Incorporated Centre	Popula- tion
	No		No		No
<b>Alberta</b> —concluded		Wetaskiwin, c.....	6,267	Nelson, c.....	9,400
Leduc, t.....	4,000	Whitecourt, t.....	3,202	New Westminster, c.....	42,835
Lethbridge, c.....	41,217	<b>British Columbia</b> —		North Vancouver, c.....	31,847
Lloydminster, c.....	1	Armstrong, c.....	1,648	Oliver, v.....	1,615
Magrath, t.....	1,215	Ashcroft, v.....	1,916	100 Mile House, v.....	1,120
Manning, t.....	1,071	Burns Lake, v.....	1,259	Osoyoos, v.....	1,285
Mayerthorpe, t.....	1,036	Cache Creek, v.....	1,013	Parksville, v.....	2,169
McLennan, t.....	1,090	Castlegar, t.....	3,072	Penticton, c.....	18,146
Medicine Hat, c.....	26,518	Chase, v.....	1,212	Port Alberni, c.....	20,063
Morinville, t.....	1,475	Chetwynd, v.....	1,260	Port Alice, v.....	1,507
Okotoks, t.....	1,247	Chilliwack, c.....	9,135	Port Coquitlam, c.....	19,560
Olds, t.....	3,376	Comox, t.....	3,980	Port Edward, v.....	1,019
Peace River, t.....	5,039	Courtenay, c.....	7,152	Port Moody, c.....	10,778
Picture Butte, t.....	1,008	Cranbrook, c.....	12,000	Prince George, c.....	33,101
Pincher Creek, t.....	3,227	Creston, t.....	3,204	Prince Rupert, c.....	15,747
Ponoka, t.....	4,414	Cumberland, v.....	1,718	Princeton, v.....	2,601
Provost, t.....	1,489	Dawson Creek, c.....	11,885	Qualicum Beach, v.....	1,245
Raymond, t.....	2,156	Duncan, c.....	4,388	Quesnel, t.....	6,252
Redcliff, t.....	2,255	Enderby, c.....	1,158	Revelstoke, c.....	4,867
Red Deer, c.....	27,674	Fernie, c.....	4,422	Rossland, c.....	3,896
Redwater, t.....	1,287	Fort Nelson, v.....	2,289	Sidney, t.....	4,868
Rimbey, t.....	1,450	Fort St. James, v.....	1,483	Smithers, t.....	3,864
Rocky Mountain House, t.....	2,968	Fort St. John, t.....	8,264	South Fort George, v.....	1,282
St. Albert, t.....	11,800	Fraser Lake, v.....	1,292	Tahsis, v.....	1,351
St. Paul, t.....	4,161	Fruitvale, v.....	1,379	Trail, c.....	11,149
Slave Lake, t.....	2,052	Gibsons, v.....	1,934	Ucluelet, v.....	1,018
Spirit River, t.....	1,091	Golden, t.....	3,010	Valleyview, t.....	3,787
Spruce Grove, t.....	3,029	Grand Forks, c.....	3,173	Vancouver, c.....	426,256
Stettler, t.....	4,168	Hope, t.....	3,153	Vanderhoof, v.....	1,653
Stony Plain, t.....	1,770	Invermere, v.....	1,065	Vernon, c.....	13,283
Strathmore, t.....	1,148	Kamloops, c.....	26,168	Victoria, c.....	61,761
Swan Hills, t.....	1,376	Kelowna, c.....	19,412	Warfield, v.....	2,132
Sylvan Lake, t.....	1,597	Kimberley, c.....	7,641	White Rock, c.....	10,349
Taber, t.....	4,765	Kinnaird, t.....	2,846	Williams Lake, t.....	4,072
Three Hills, t.....	1,354	Ladysmith, t.....	3,664	<b>Yukon</b> —	
Valleyview, t.....	1,708	Lake Cowichan, v.....	2,364	Whitehorse, c.....	11,217
Vauxhall, t.....	1,016	Langley, c.....	4,684	<b>Northwest Territories</b> —	
Vegreville, t.....	3,691	Lillooet, v.....	1,514	Fort Smith, t.....	2,364
Vermilion, t.....	2,915	Merritt, t.....	5,289	Hay River, t.....	2,406
Viking, t.....	1,178	Montrose, v.....	1,137	Inuvik, t.....	2,669
Vulcan, t.....	1,384	Nakusp, v.....	1,163	Yellowknife, c.....	6,122
Wainwright, t.....	3,872	Nanaimo, c.....	14,948		
Westlock, t.....	3,246				

<sup>1</sup> See Saskatchewan.

# APPENDIX III

## VITAL STATISTICS

### PAGES 241-246

The following are 1970 figures for Tables 1 and 2 of the Chapter on Vital Statistics:—

#### 1.—Principal Vital Statistics, by Province, 1970

Province or Territory	Live Births		Deaths		Natural Increase <sup>1</sup>		Infant Mortality <sup>2</sup>		Maternal Mortality		Marriages	
	No.	Rate <sup>3</sup>	No.	Rate <sup>3</sup>	No.	Rate <sup>3</sup>	No.	Rate <sup>4</sup>	No.	Rate <sup>5</sup>	No.	Rate <sup>3</sup>
Newfoundland.....	12,539	24.2	3,294	6.4	9,245	17.8	273	21.8	5	3.9	4,466	8.6
P.E. Island.....	1,957	17.8	1,015	9.2	942	8.6	43	22.0	—	—	913	8.3
Nova Scotia.....	14,159	18.5	6,723	8.8	7,436	9.7	245	17.3	2	1.4	6,800	8.9
New Brunswick.....	11,545	18.5	4,945	7.9	6,600	10.6	227	19.7	2	1.7	5,696	9.1
Quebec.....	91,757	15.3	40,392	6.7	51,365	8.6	1,888	20.6	22	2.4	49,606	8.2
Ontario.....	134,724	17.6	56,769	7.4	77,955	10.2	2,271	16.9	27	2.0	68,874	9.0
Manitoba.....	18,248	18.6	7,856	8.0	10,392	10.6	344	18.9	4	2.2	9,008	9.2
Saskatchewan.....	16,443	17.5	7,472	7.9	8,971	9.6	368	22.4	3	1.8	7,317	7.8
Alberta.....	31,967	20.0	10,112	6.3	21,855	13.7	612	19.1	4	1.3	15,285	9.6
British Columbia.....	36,861	17.2	17,020	8.0	19,841	9.3	623	16.9	5	1.4	20,026	9.4
Yukon Territory.....	451	28.2	109	6.8	342	21.4	16	35.5	—	—	201	12.6
Northwest Territories.....	1,337	40.5	254	7.7	1,083	32.8	91	68.1	1	7.5	236	7.2
<b>Canada.....</b>	<b>371,988</b>	<b>17.4</b>	<b>155,961</b>	<b>7.3</b>	<b>216,027</b>	<b>10.1</b>	<b>7,001</b>	<b>18.8</b>	<b>75</b>	<b>2.0</b>	<b>188,428</b>	<b>8.8</b>

<sup>1</sup> Excess of births over deaths.  
1,000 live births.

<sup>2</sup> Deaths under one year of age.  
<sup>3</sup> Per 1,000 live births.

<sup>4</sup> Per 1,000 population.

<sup>5</sup> Per 10,000 live births.

#### 2.—Principal Vital Statistics for Incorporated Urban Centres of 20,000 Population or Over,<sup>1</sup> 1970

NOTE.—Figures for certain urban places may not be comparable for the periods shown because of changes in area boundaries, particularly for those indicated by an asterisk(\*). Urban centres are designated in this table by the following abbreviations: c. = city, t. = town, b. = borough, d.m. = district municipality, s.m. = suburban municipality and twp. = township.

Province and Urban Centre	Live Births	Deaths	Infant Mortality <sup>2</sup>		Neonatal Mortality <sup>3</sup>		Marriages <sup>4</sup>
	No.	No.	No.	Rate <sup>5</sup>	No.	Rate <sup>5</sup>	No.
<b>Newfoundland—</b>							
Corner Brook, c.....	589	159	19	32.3	10	17.0	320
St. John's, c.....	1,877	636	35	18.6	27	14.4	1,175
<b>Prince Edward Island—</b>							
Charlottetown, c.*.....	311	266	6	19.3	4	12.9	224
<b>Nova Scotia—</b>							
Dartmouth, c.....	1,423	250	19	13.4	14	9.8	428
Gloucester, t.....	410	255	10	24.4	7	17.1	196
Halifax, c.....	2,252	929	28	12.4	20	8.9	1,503
Sydney, c.....	590	356	11	18.6	9	15.3	305
<b>New Brunswick—</b>							
Fredericton, c.....	442	165	6	13.6	3	6.8	313
Moncton, c.....	888	315	4	4.5	3	3.4	545
Saint John, c.....	1,590	858	32	20.1	29	18.2	791

For footnotes, see end of table, p. 1380.

**2.—Principal Vital Statistics for Incorporated Urban Centres  
of 20,000 Population or Over, 1970—continued**

Province and Urban Centre	Live Births	Deaths	Infant Mortality <sup>2</sup>		Neonatal Mortality <sup>3</sup>		Marriages <sup>4</sup>
	No.	No.	No.	Rate <sup>5</sup>	No.	Rate <sup>5</sup>	No.
<b>Quebec—</b>							
Alma, c.....	403	108	15	37.2	13	32.3	244
Anjou, t.....	676	186	13	19.2	8	11.8	88
Cap-de-la-Madeleine, c.....	429	189	6	14.0	4	9.3	306
Charlesbourg, c.....	643	128	8	12.4	7	10.9	167
Chicoutimi, c.....	625	199	14	22.4	8	12.8	379
Côte St. Luc, c.....	267	193	3	11.2	2	7.5	84
Dorval, c.....	237	131	7	29.5	6	25.3	100
Drummondville, c.....	515	295	11	21.4	8	15.5	348
Granby, c.....	541	243	13	24.0	11	20.3	315
*Hull, c.....	1,204	437	33	27.4	24	19.9	533
Jonquière, c.....	416	152	8	19.2	5	12.0	362
Lachine, c.....	655	287	9	13.7	7	10.7	331
LaSalle, c.....	1,484	351	20	13.5	13	8.8	262
Laval, c.....	3,139	1,012	57	18.2	38	12.1	1,057
Longueuil, c.....	1,753	480	32	18.3	17	9.7	583
*Montreal, c.....	17,419	10,282	321	18.4	229	13.1	12,272
Montreal North, c.....	1,589	422	37	23.3	21	13.2	448
Mount Royal, t.....	157	129	1	6.4	1	6.4	227
Outremont, c.....	251	234	6	23.9	4	15.9	208
*Pierrefonds, c.....	552	95	9	16.3	8	14.5	70
Pointe aux Trembles, c.....	516	230	14	27.1	7	13.6	174
Pointe Claire, c.....	286	160	8	28.0	5	17.5	214
Quebec, c.....	2,771	1,657	48	17.3	32	11.5	1,925
*Rimouski, c.....	414	178	7	17.0	7	17.0	261
Ste-Foy, c.....	1,198	216	28	23.4	21	17.5	482
St-Hyacinthe, c.....	353	243	3	8.5	2	5.7	273
St-Jean, c.....	474	207	10	21.1	6	12.7	276
St-Jérôme, c.....	458	189	9	19.7	6	13.1	331
St-Laurent, t.....	918	361	20	21.8	13	14.2	443
*St-Léonard, c.....	936	172	13	13.9	11	11.8	240
Shawinigan, c.....	310	194	4	12.9	3	9.7	263
Sherbrooke, c.....	1,464	745	32	21.9	25	17.1	791
Thetford Mines, c.....	320	141	4	12.5	3	9.4	191
Trois-Rivières, c.....	814	467	21	25.8	10	12.3	489
Valleyfield (Salaberry-de-), c.....	492	235	12	24.4	10	20.3	295
Verdun, c.....	1,094	691	18	16.5	14	12.8	652
Victoriaville, t.....	385	169	8	20.8	6	15.6	216
Westmount, c.....	168	222	3	17.9	2	11.9	363
<b>Ontario—</b>							
Barrie, c.....	485	234	9	18.6	8	16.5	369
Belleville, c.....	533	275	10	18.8	5	9.4	388
*Brampton, t.....	786	184	17	21.6	12	15.3	389
Brantford, c.....	1,048	623	22	21.0	19	18.1	617
Burlington, t.....	1,439	336	23	16.0	18	12.5	481
Chatham, c.....	695	280	12	17.3	10	14.4	366
Cornwall, c.....	689	378	9	13.1	8	11.6	534
Etobicoke, b.....	4,233	1,614	55	13.0	49	11.6	1,419
Fort Erie, t.....	331	227	6	18.1	1	3.0	191
Galt, c.....	708	281	16	22.6	14	19.8	364
Guelph, c.....	1,062	446	12	11.3	9	8.5	574
Hamilton, c.....	5,290	2,507	78	14.7	54	10.2	3,081
Kingston, c.....	1,134	551	21	18.5	11	9.7	775
Kitchener, c.....	2,244	704	55	24.5	43	19.2	1,232
London, c.....	4,005	1,565	67	16.7	48	12.0	2,004
*Mississauga, t.....	3,046	524	41	13.5	32	10.5	624
Niagara Falls, c.....	1,175	522	19	16.2	16	13.6	648
*North Bay, c.....	835	312	11	13.2	7	8.4	466
*Oakville, c.....	930	219	11	11.8	9	9.7	529
Oshilla, c.....	358	242	5	14.0	4	11.2	238
Oshawa, c.....	1,752	551	24	13.7	19	10.8	752
Ottawa, c.....	4,539	2,492	91	20.0	64	14.1	3,593
Peterborough, c.....	924	483	8	8.7	6	6.5	622
Port Colborne, c.....	340	170	10	29.4	8	23.5	216
St. Catharines, c.....	1,879	868	30	16.0	24	12.8	980
St. Thomas, c.....	445	278	11	24.7	7	15.7	312
Sarnia, c.....	1,065	376	20	18.8	12	11.3	577

For footnotes, see end of table, p. 1380.



**2.—Principal Vital Statistics for Incorporated Urban Centres  
of 20,000 Population or Over,<sup>1</sup> 1970 —concluded**

Province and Urban Centre	Live Births	Deaths	Infant Mortality <sup>2</sup>		Neonatal Mortality <sup>3</sup>		Marriages <sup>4</sup>
	No.	No.	No.	Rate <sup>5</sup>	No.	Rate <sup>5</sup>	No.
<b>Ontario—concluded</b>							
*Sault Ste. Marie, c.....	1,459	483	20	13.7	17	11.7	692
Scarborough, b.....	5,585	1,656	94	16.8	78	14.0	2,040
Stratford, c.....	385	275	12	31.2	10	26.0	246
Sudbury, c.....	1,952	599	31	15.9	22	11.3	1,050
Thunder Bay, c.....	1,881	996	37	20.7	30	15.9	1,034
Timmins, t.....	517	268	10	19.3	7	13.5	291
Toronto, c.....	13,605	6,630	219	16.1	162	11.9	14,843
Vanier City, c.....	608	138	6	9.9	5	8.2	187
Waterloo, c.....	732	181	6	8.2	4	5.5	355
Welland, c.....	748	337	10	13.4	7	9.4	436
*Whitby, t.....	371	175	5	13.5	4	10.8	169
*Windsor, c.....	3,750	1,743	74	19.7	52	13.9	1,989
*Woodstock, c.....	423	194	6	14.2	6	14.2	297
*York, b.....	3,129	1,012	46	14.7	40	12.8	598
*York East, b.....	1,892	767	32	16.9	25	13.2	208
York North, b.....	9,138	2,418	123	13.5	95	10.4	2,026
<b>Manitoba—</b>							
Brandon, c.....	499	294	6	12.0	5	10.0	303
Fort Garry, s.m.....	435	111	8	18.4	7	16.1	165
Kildonan East, c.....	399	164	4	10.0	4	10.0	234
Kildonan West, c.....	304	157	3	9.9	1	3.3	134
*St. Boniface, c.....	899	311	15	16.7	13	14.5	388
*St. James-Assiniboia, c.....	1,096	389	20	18.2	19	17.3	490
St. Vital, c.....	587	207	8	13.6	7	11.9	241
Winnipeg, c.....	4,800	2,713	101	21.0	78	16.3	3,480
<b>Saskatchewan—</b>							
Moose Jaw, c.....	478	328	9	18.8	6	12.6	316
Prince Albert, c.....	565	215	12	21.2	11	19.5	284
Regina, c.....	2,741	985	48	17.5	32	11.7	1,257
Saskatoon, c.....	2,544	956	52	20.4	37	14.5	1,290
<b>Alberta—</b>							
*Calgary, c.....	8,106	2,364	150	18.5	113	13.9	3,983
Edmonton, c.....	9,063	2,330	149	16.4	110	12.1	4,956
Lethbridge, c.....	720	324	14	19.4	13	18.1	510
Medicine Hat, c.....	402	249	9	22.4	7	17.4	331
Red Deer, c.....	540	196	11	20.4	9	16.7	412
<b>British Columbia—</b>							
Burnaby, d.m.....	2,007	878	19	9.5	13	6.5	895
Chilliwack, d.m.....	388	156	11	28.4	8	20.6	156
Coquitlam, d.m.....	912	210	16	17.5	13	14.3	185
Delta, d.m.....	876	200	12	13.7	4	4.6	162
*Kamloops, c.....	562	200	8	14.2	4	7.1	450
New Westminster, c.....	720	405	5	6.9	5	6.9	899
North Vancouver, c.....	961	230	10	10.4	7	7.3	330
North Vancouver, d.m.....	628	274	8	12.7	6	9.6	394
Prince George, c.....	888	144	15	16.9	12	13.5	519
Richmond, twp.....	979	304	10	10.2	7	7.2	370
Saanich, d.m.....	871	480	11	12.6	10	11.5	366
Surrey, d.m.....	1,612	648	24	14.9	19	11.8	571
Vancouver, c.....	6,280	4,782	90	14.3	59	9.4	5,512
Victoria, c.....	814	1,027	16	19.7	11	13.5	1,050
West Vancouver, d.m.....	32.1	260	6	18.7	2	6.2	352

<sup>1</sup> As at the date of the 1971 Census: residents only.

<sup>2</sup> Deaths under one year of age.

<sup>3</sup> Deaths under

28 days.

<sup>4</sup> By place of occurrence.

<sup>5</sup> Per 1,000 live births.

<sup>6</sup> Population fewer than 20,000 at date of 1971 Census but included as the largest urban centre in Prince Edward Island.

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— representation in the House of Commons....	99, 105	<b>Z</b> ine production.....	595, 596, 602, <del>609-11</del>
— roads and highways.....	891	— world production of.....	C46-7









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KILOMETRES 0 50 100 150 200 250 300 350 400 450 500

Federal Capital ..... • Provincial Capital ..... •  
Railways .....  
Airways and Air Routes .....  
International Air Routes .....

DEPARTMENT OF  
ENERGY, MINES, AND RESOURCES  
SURVEY AND MAPPING BRANCH  
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